


**Towards A More Hospitable Learning Environment:
A Design Exploration of Public, Private, and the
Zones in-between for an Elementary School in Boston**

by
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BA., Biochemistry
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
Submitted to the Department of Architecture
in partial fulfillment of the requirements for the degree
Master of Architecture
at the
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ABSTRACT

This thesis is the design exploration of an elementary school in the urban setting of South End, Boston. The intention is to arrive at a socially oriented learning environment by addressing the multiple use of space from the collective, to small group, to individual, both inside and outside the classroom. There should be "capacity" built into these zones to allow for a multitude of activities to take place, thereby fostering social interaction among children and adults.

A delicate balance between the public, the private, and the transitions in-between can help accomplish flexible use of space. This balance should occur at the classroom level, the hallway level, and the school level. The thesis focuses on this issue in a design exploration for the elementary school, where children first encounter learning as an institution. The assumption is that a rich experience between the public, private, and the zones in-between, for both the students and the teachers, will result ultimately in a more healthy and joyful environment conducive towards learning.

Thesis Supervisor: Rosemary Grimshaw
Title: Assistant Professor of Architecture

to my family
to Eddie

.....always supportive, encouraging, and caring

special thanks to Rosemary, for her support, insight, and understanding

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The concepts "public" and "private" can be interpreted as the translation into spatial terms of "collective" and "individual".

In a more absolute sense you could say:

public: an area that is accessible to everyone at all times; responsibility for upkeep is held collectively.

private: an area whose accessibility is determined by a small group or one person, with responsibility for upkeep.

The concepts "public" and "private" may be seen and understood in relative terms as a series of spatial qualities which, differing gradually, refer to accessibility, responsibility, the relation between private property and supervision of specific spatial units.

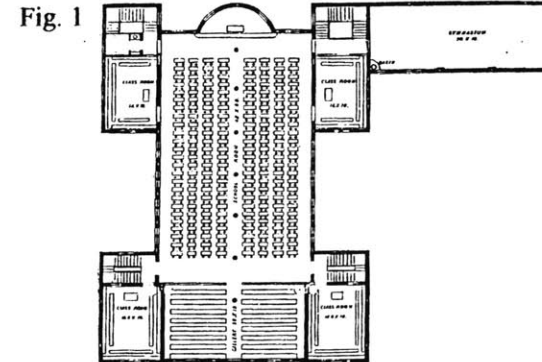
Herman Hertzberger
Lessons for Students in Architecture

1 INTENTIONS

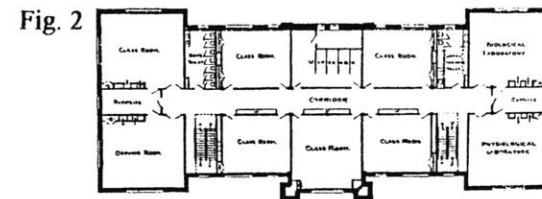
Our educational system has been the subject of change and reform since the very beginning. School buildings in the nineteenth and early twentieth centuries were not environments conducive towards learning. In the 1850's one teacher taught several hundred students in a room of 75 feet by 100 feet under the Lancastrian teaching system.¹ Then there were standardized classrooms flanking long, dark, internal corridors. The 1950's brought a system of prefabricated lightweight steel frame components that made possible the rapid construction of schools.² Frequently, however, the quality of the spaces constructed suffered greatly as a result of quantity. In the 1970's the open-plan school design utilizing movable, dividing partitions within classrooms allowed for flexibility in teaching, but created issues of noise, discipline, and behavioral problems in children.³

In the past years, there is a resurgent interest in the programming and design of school buildings. The interest lies not only in providing quality education to students, but also in providing quality settings for learning to take place. This is especially relevant in urban locations such as New York, where densely populated schools of several thousand students result in anonymity as well as disciplinary problems.⁴ In addressing this and other issues, the proposal is currently made by the Public Education Association of New York, and by educators such as Deborah Meier, for smaller schools and teacher empowerment.⁵

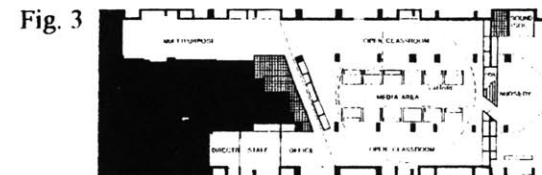
The notion of the small school is highly relevant in the design of the elementary school in Boston. The intent of the thesis is to create an environment where each student is



The Lancastrian system



Classroom arrangement in the 1900's



Open plan school of the 1970's

*You want a school small enough so
everybody can see each other's work,
hear each other's viewpoint.*

*Deborah Meier
"Portrait of Deborah Meier"*

*Most city schools are too big, and
anonymity among students is a pervasive
problem...Overcoming anonymity--
creating a setting in which every student
is known personally by an adult--is one of
the most compelling obligations urban
schools confront.*

*Report: "An Imperiled Generation--
Saving Urban Schools"
Carnegie Foundation for the
Advancement of Teaching*

special; where children feel comfortable and safe, and can therefore be free to learn from teachers and fellow students. To help achieve an architecture that promotes social exchange, the thesis looks at space use in a public zone, a private zone, and the zones in-between public and private. Although the problem is investigated at both the site and building level, the emphasis is placed primarily at the building level.

Fig. 4



social interchange in the elementary school

REMARKS FROM AN ELEMENTARY SCHOOL STUDENT
"Those Places They Call Schools", by Robert Coles

"I'll tell you one thing, I'd tear this building down. There's nothing to do but that. Then, if I could build a new school, I'd make it pleasant-like. I'd get rid of all the desks, every one of them. I'd have us sit around a table, and maybe we could have cookies. I'd have the teacher be better. She could laugh a lot, and there wouldn't be a clock up there, making noise every minute that goes by. We could open and close the windows and they wouldn't be stuck like now. We could have a big rug here in the room, so if you fell down you wouldn't get hurt, like I did. And they could have some places, some big sofas maybe, where if you didn't feel too good, you could lie down, or you could just sit in them sometimes, and you'd be more comfortable.

I'm not sure why they have us go to school. Do you know?
Is there anyone who does?

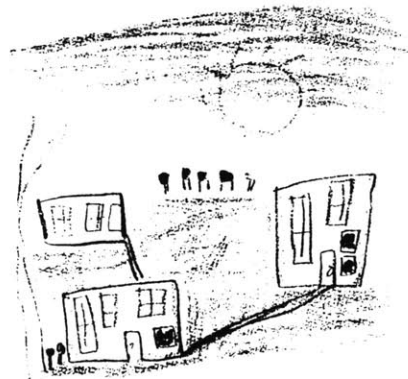
I know it's to learn things, how to read and do arithmetic and like that, but most of the time it's just a waste, and you'd think they might want to change it around, and have us spend the day better.

You'd think they might try to change a lot of things themselves."

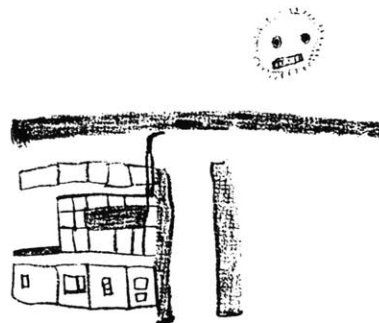
Architecture is the physical form of social institution.

James Ackerman
Harvard Educational Review

Fig. 5



Billy



Arthur



Billy

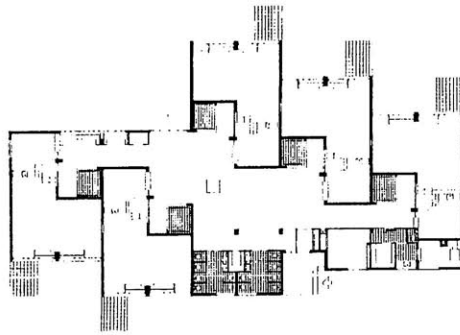


Fig. 6

Montessori School: plan

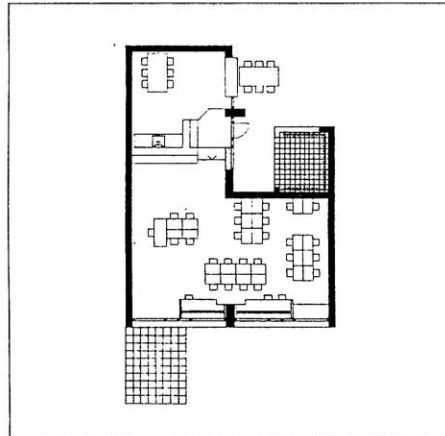


Fig. 7

A typical classroom arrangement



Fig. 8

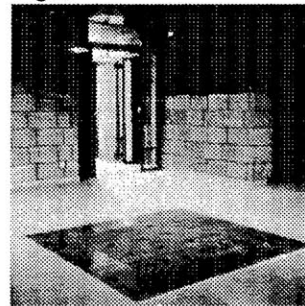
The podium block

2 REFERENCE PROJECTS

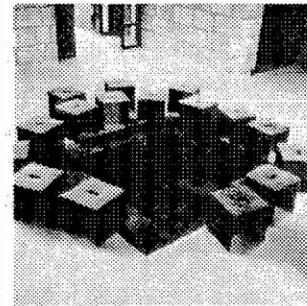
Three elementary schools designed by Herman Hertzberger were chosen as reference projects: Montessori School in Delft; Apollo Schools in Amsterdam; and Elementary School "De Evenaar" in Amsterdam. Hertzberger's design philosophy of an architecture that encourages user interaction is a personal and very "social" form of design.⁶ What is strikingly evident in all three designs is the sense of community and a touching sensitivity towards the needs of the individual as well as that of the group. The schools, being small to begin with, already establish a sense of unity. The designs further strengthen this cohesiveness by orienting all the classrooms towards the central hall. Having to go through the central hall to get to anywhere else effectively establishes the central hall as a common meeting ground for students and teachers. Within this most public zone, however, Hertzberger is still careful to maintain privacy for the individual. Taken as a whole, these are powerful lessons to incorporate into the design of the elementary school in Boston.

The Montessori School in Delft (1960-81) is a kindergarten and primary school designed with the Montessori style of teaching in mind. It has undergone five phases of

Fig. 9



The sunken sitting area



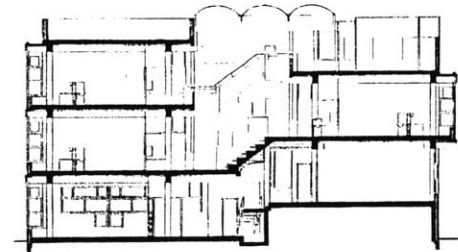
construction between the years 1960 and 1981. Our focus is on the second phase, completed in 1966.⁷ The classrooms are L-shaped, allowing for a small-group entry zone in addition to the general classroom area. The hall is the nucleus of the school's activities in both location and content. The podium block can extend in all directions to become a stage for performance, and the sunken sitting area with loose wooden blocks is big enough to seat the whole class.⁸

The Apollo Schools in Amsterdam (1980-83) are two primary schools with kindergartens located in two separate buildings. The structures are similar for the most part because they were developed as twin buildings from identical starting points of being villa-like, on both the interior and the exterior. As a result of the difference in location on the site, the entrances and corner conditions are unique to each building.⁹ As



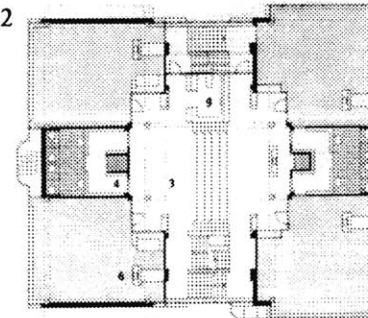
The Apollo Schools

Fig. 11



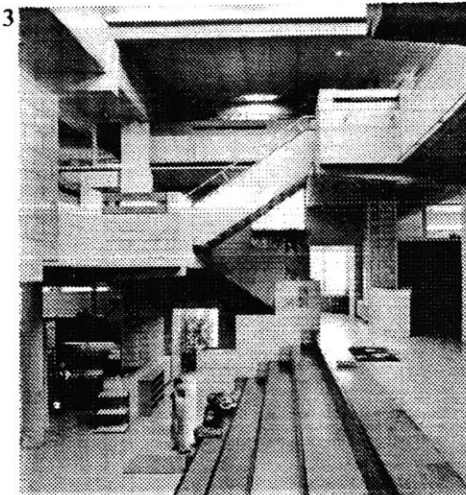
Section

Fig. 12



Second level plan

Fig. 13



The central hall

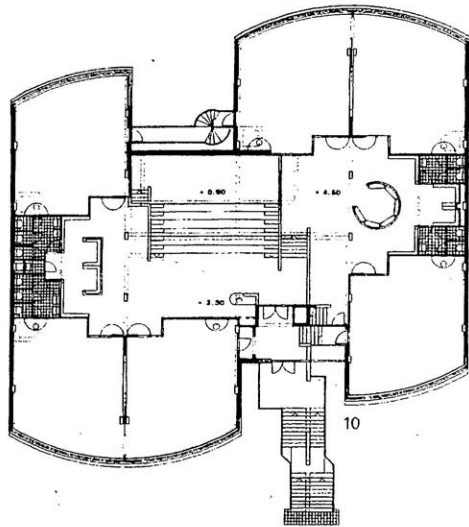


Fig. 14

"De Evenaar": second level plan

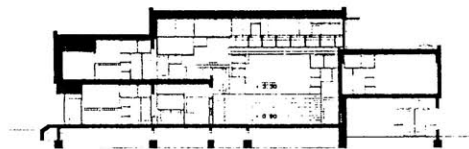


Fig. 15

Section

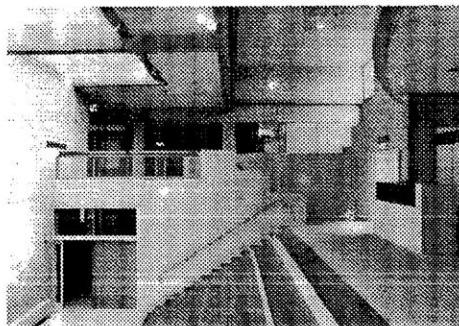


Fig. 16

The central hall

is the case in the Montessori School, the central hall is again the heart of the school building. Surrounded by classrooms offset at half-levels, the central stairway is at once big enough to accommodate the entire student body, and small enough for the individual student to feel comfortable in.

"De Evenaar" (1983-86) in Amsterdam is also a primary school with kindergarden. The classrooms, grouped in clusters of three, are on split levels.¹⁰ This split-level arrangement of classrooms surrounding the central hall in both "De Evenaar" and the Apollo Schools serve to emphasize the central hall as the common, public zone of the school building visually as well as organizationally.

A chart on the following pages documents qualities common to all three elementary schools by Hertzberger.

...to make form and space such that it will be interpreted in different ways, according to individual (shades of) requirements. This interpretation is stimulated and cultivated by the associations that are evoked by the form, the way it has been designed.

Herman Hertzberger

A + U, December 1983

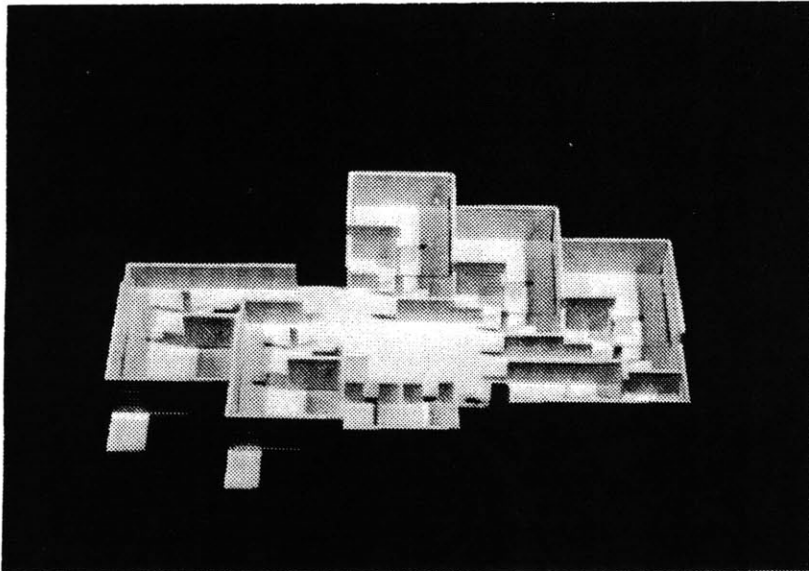


Fig. 17

Study model of the Montessori School

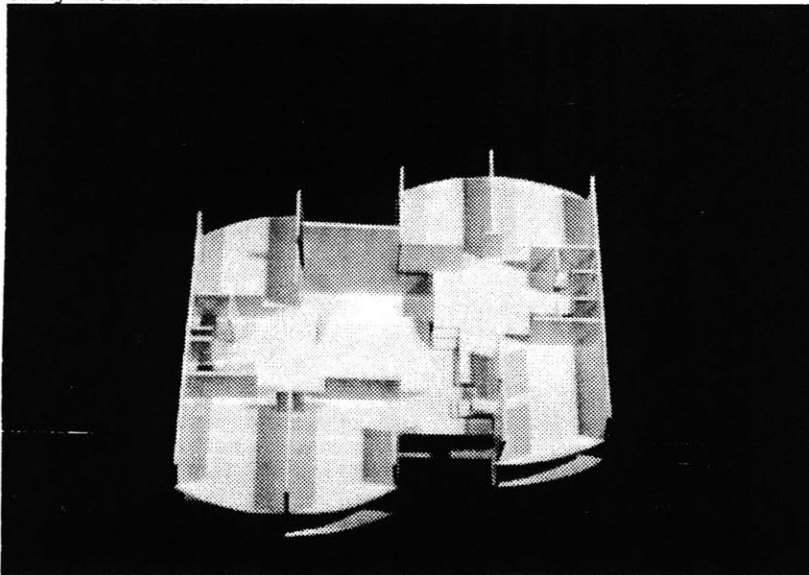
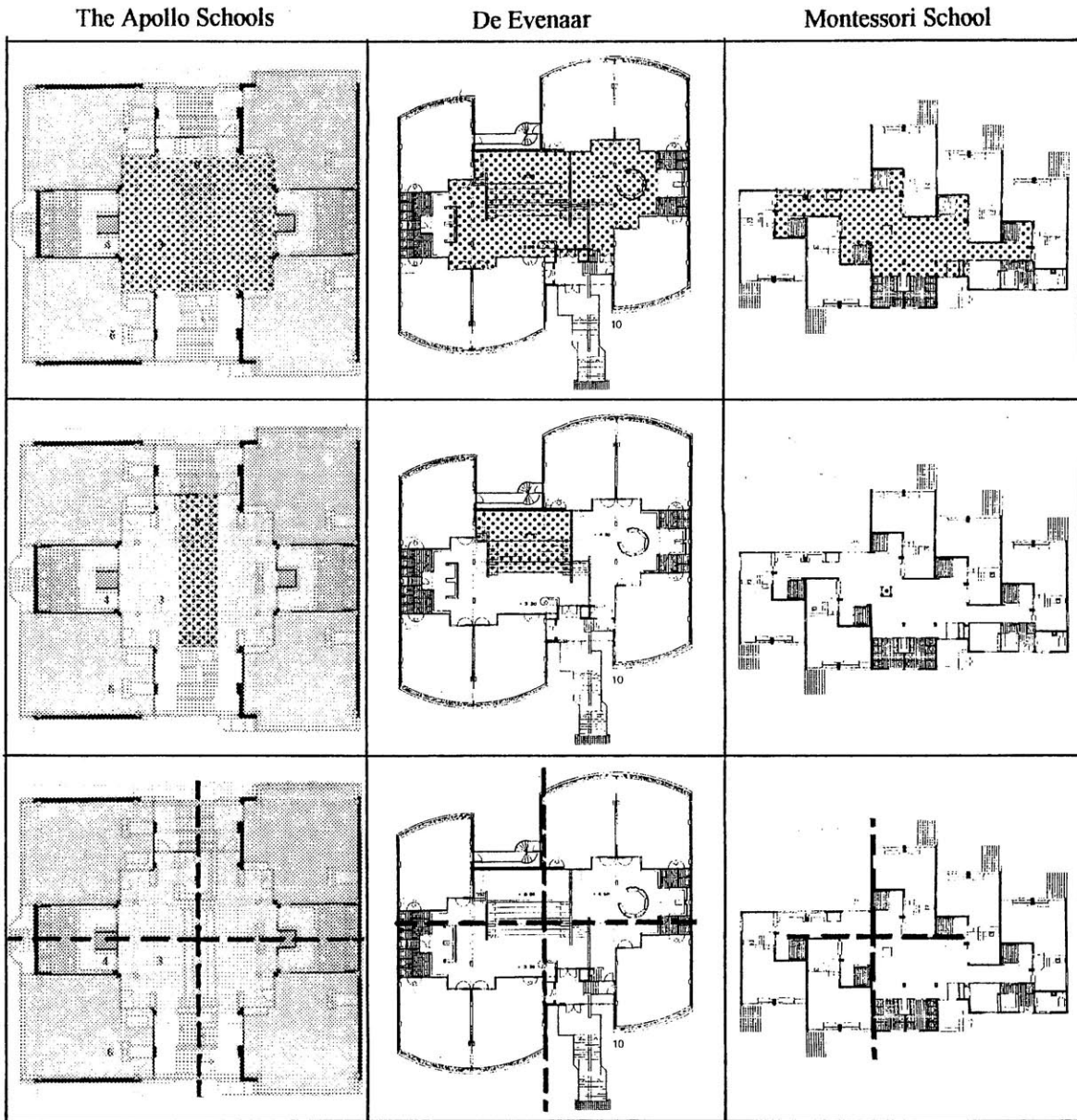


Fig. 18

Study model of "De Evenaar"

Commonality No. 1

Classrooms grouped around central hall



Commonality No. 2

Group activity occurs in central hall

Commonality No. 3

Symmetry

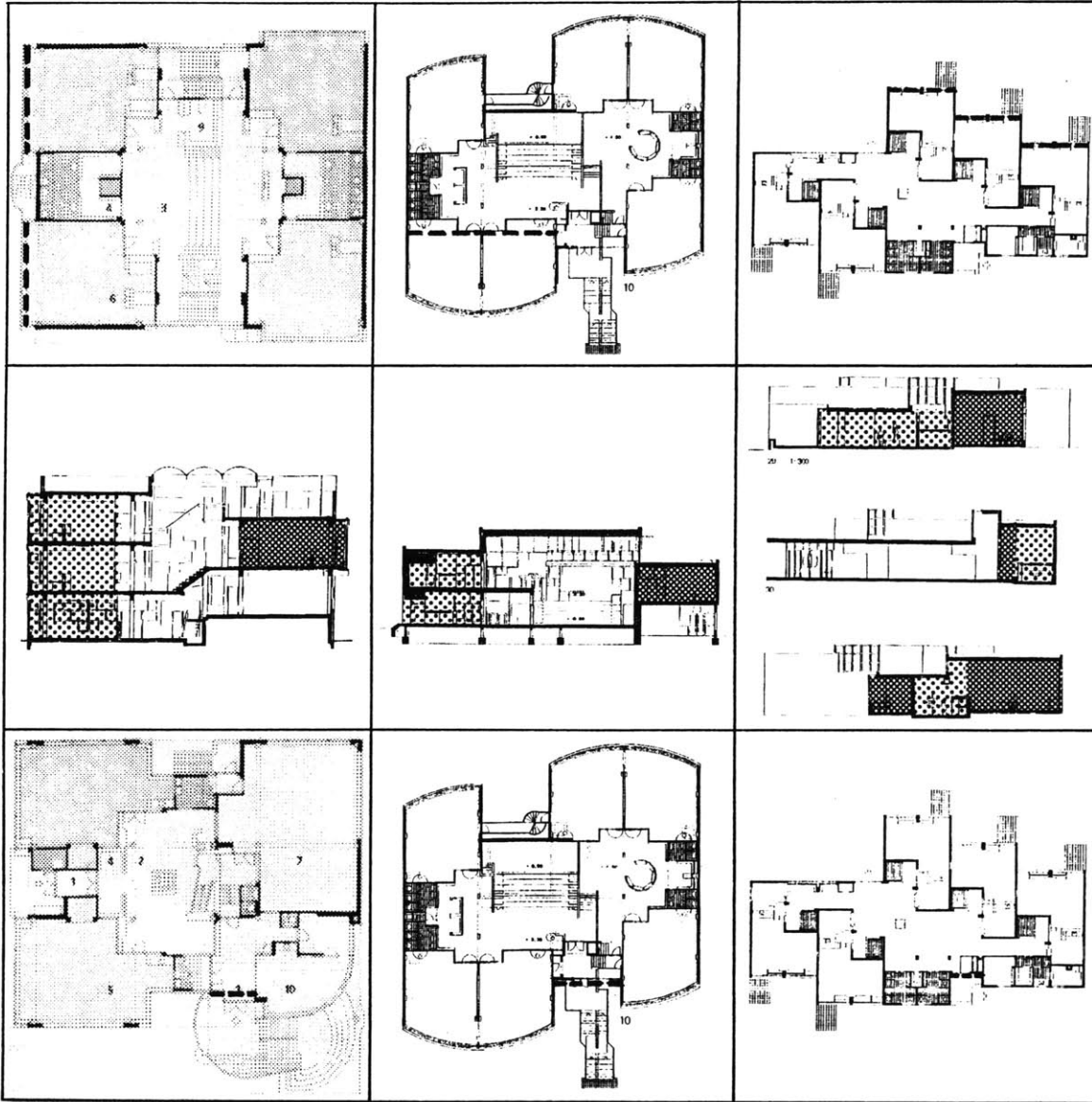
The Apollo Schools

De Evenaar

Montessori School

Commonality No. 4

Classroom dimension of 26'

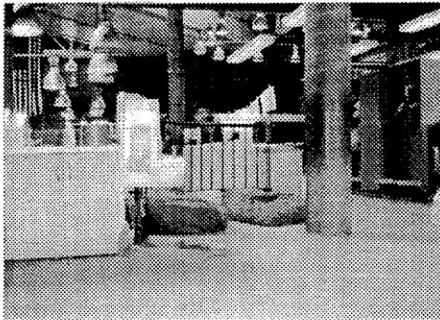


Commonality No. 5

Level change to mark
subtle shift in territory

Commonality No. 6

Recessed entry



Pierce School, Brookline

Fig. 19



Cambridge Friends School,
Cambridge

Fig. 20



Edward Devotion Elementary School,
Brookline

Fig. 21

In order to gain a working knowledge of elementary schools in the Boston area, interviews were conducted with teachers, administrators, and students at eleven locations to get a sense of what is working, what is not, and what they deemed as important to have.¹¹

Flexibility of space usage within and between classrooms is deemed as highly desirable. A connecting door or partitions can help tremendously in this regard. Many teachers prefer the traditional enclosed classroom instead of the open classroom arrangement because the open classroom often contributes to too much noise and distraction. General consensus is in favor of more storage spaces (textbooks, supplies, coats, personal belongings, etc.); more bulletin and display areas for both inside and outside the classrooms; and more "soft" areas (e.g. rugs, sofas) and quiet spaces for kids within the classrooms. Operable windows and patios were also desirable in terms of connection between the classroom and the outdoors. Last but not least, all kindergarten classrooms should have their own child-size bathrooms and wet spaces.

Much of what was learned from these visits proved to be invaluable in making design decisions during the exploration process. Although the formal analysis of Hertzberger's schools was enlightening, the actual physical experience of being in an elementary school was indispensable.

3 THE SITE

The site is the urban neighborhood of South End, Boston. Framed by Washington Street, West Dedham Street, Shawmut Avenue, and East Brookline Street, it is the current location of the Blackstone Square Community School serving 1000 plus students from kindergarten to the fifth grade.¹² The thesis will redesign the school to accommodate 600 students ranging from kindergarten to sixth grade.

The neighborhood is primarily residential with some mixed-use and commercial buildings scattered throughout. The housing type ranges from the traditional Back Bay row houses to the Cathedral Housing Project. The Cathedral Church dominates majestically at the intersection of Washington Street and West Dedham Street, and the Brookline Square Community Park is located on the other side of East Brookline Street.

A six story residential building with commercial use on the ground floor occupies one corner of the site on East Brookline Street. A five story municipal building occupies the other corner on the same street. All the surrounding streets are residential one-way streets with the exception of Washington Street, which is a very wide, two-way vehicular street.

Fig. 22



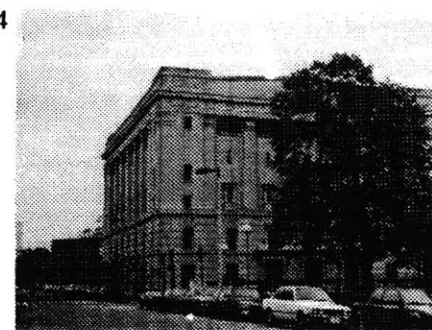
The Cathedral Church

Fig. 23



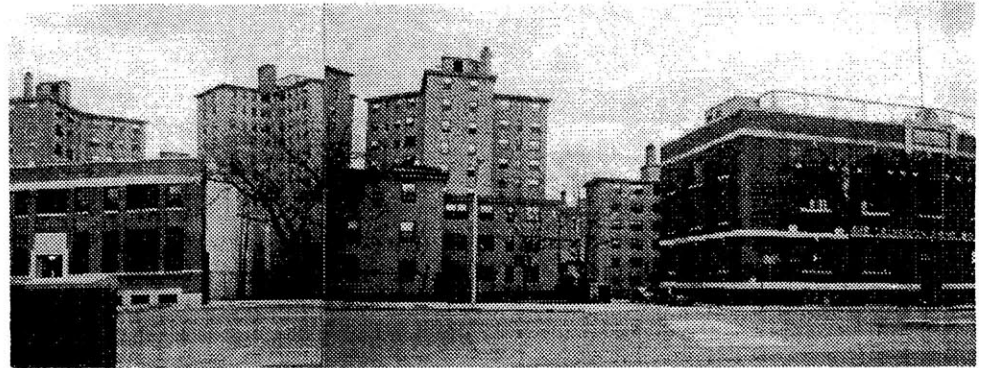
Brookline Square Community Park

Fig. 24



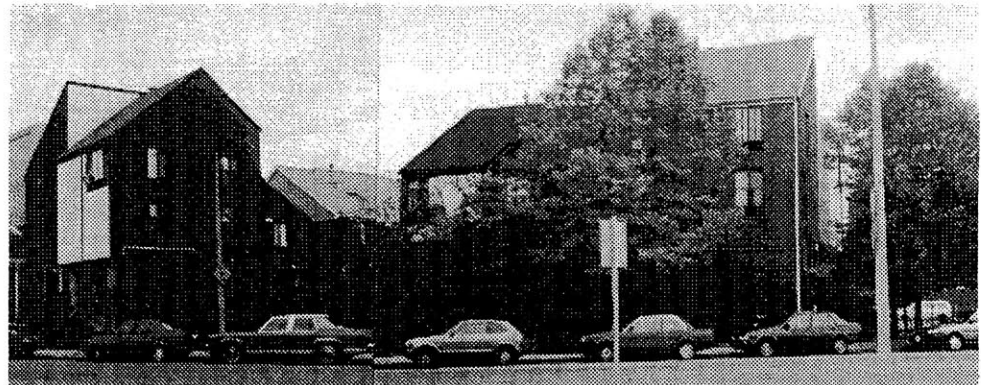
Municipal building

Fig. 25

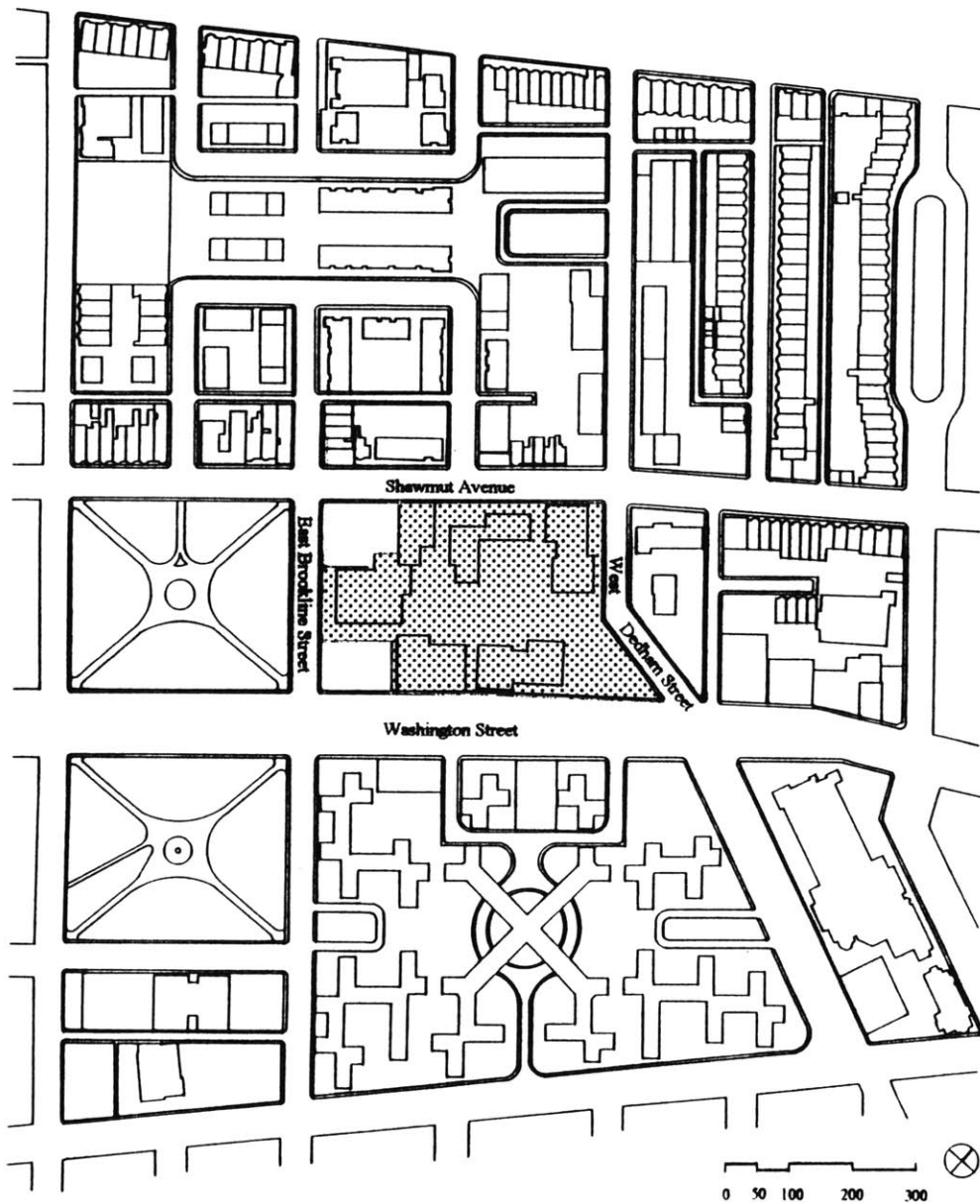


The Cathedral Housing Project on Washington Street





Fig. 26

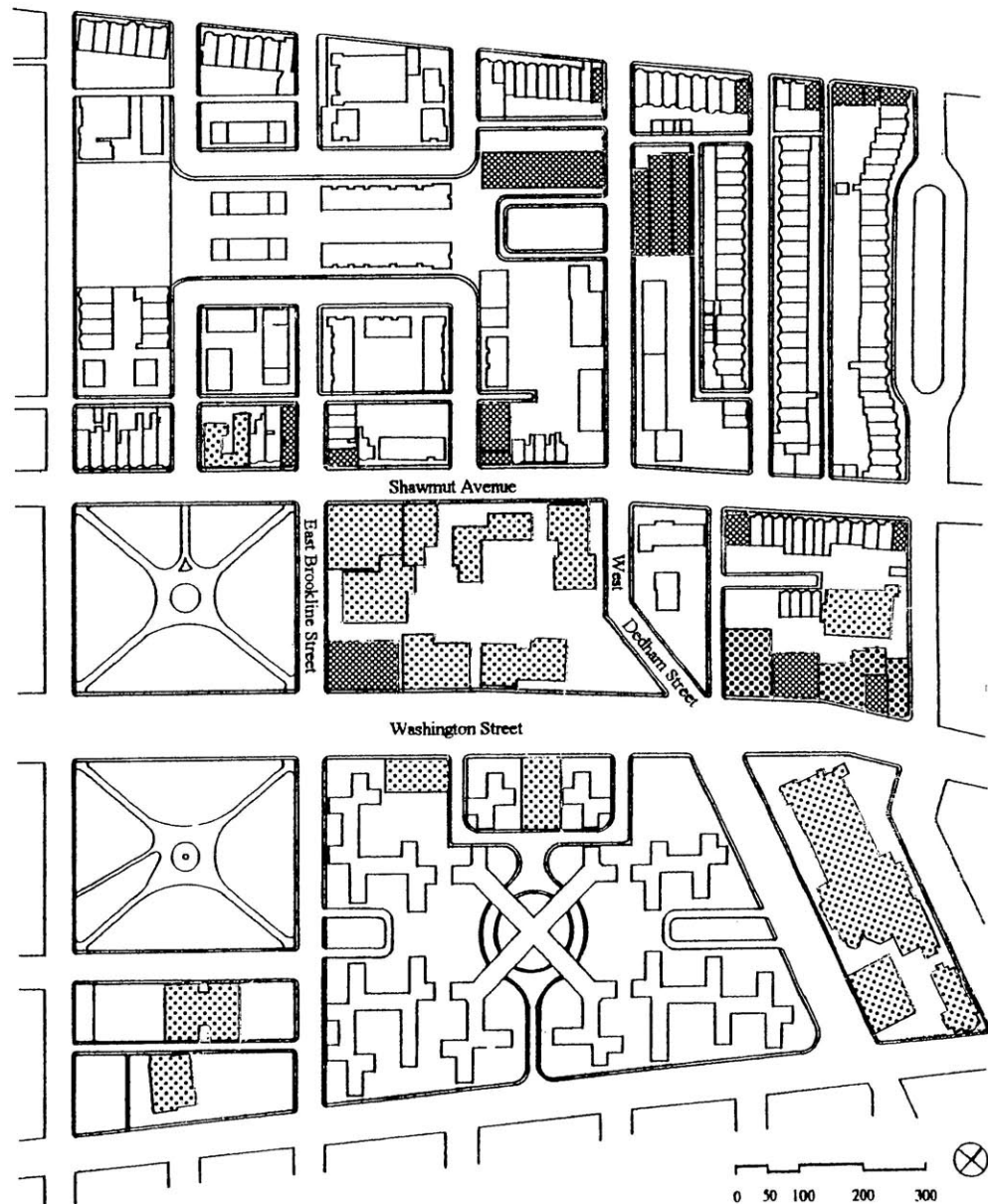


New housing development on West Dedham Street



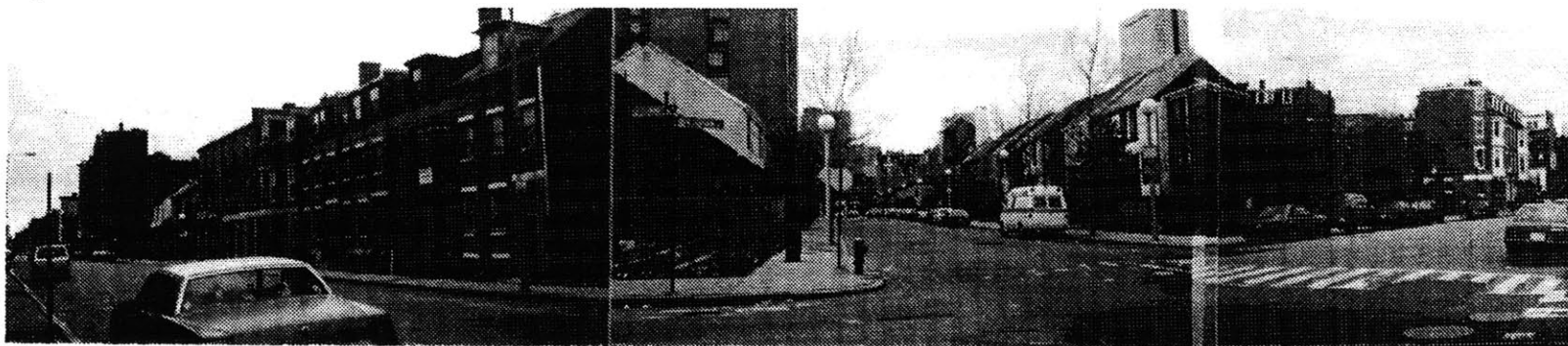
Neighborhood Site Plan

-  Residential
-  Community Resource
-  Commercial
-  Mixed Use



The Neighborhood Fabric

Fig. 27



Traditional Back Bay row houses on Shawmut Avenue

4 THE PROGRAM

Proposed Program for an Elementary School of 600 Students¹³

| <u>Administrative</u> | <u>Square Footage</u> |
|--|-----------------------|
| Administrative Office | 900 |
| Principal's Office | 200 |
| Teacher's Office..... | 1,000 |
| Guidance Counselor's Office | 250 |
| Teacher's Lounge..... | 850 |
| Conference Room | 300 |
| Parent's Room..... | 350 |
| Adult Restrooms | 400 |
| Adult Storage | 200 |
| <u>Facilities</u> | |
| Library | 2,200 |
| Auditorium | 3,000 |
| Cafeteria..... | 1,800 |
| Kitchen..... | 1,000 |
| Gymnasium | 7,300 |
| Locker Rooms | 1,800 |
| Computer Room | 800 |
| Art Room | 800 |
| Music Room..... | 600 |
| Reading Laboratory | 600 |
| Ecology/Science..... | 900 |
| <u>Classrooms</u> | |
| Kindergarten Classrooms (4 @ 1300 sf each) | 5,200 |
| Other Classrooms (24 @ 900 sf each) | 21,600 |
| Shared Spaces | 2,000 |
| Children's Restrooms | 400 |
| Children's Storage..... | 700 |

Other

Outdoor Playground..... whatever is not built
Service Area 2,000
Parking 1,600

subtotal 58,450

gross area 75,985
(add 30% for circulation, etc. *)

Lot Size

112,130

* Under most circumstances, circulation accounts for an increase in square footage of 15%-20%. In the design of the elementary school in Boston, circulation is given 30% to allow for the additional square footage associated with the zones in-between that promote social exchange.

Schools, above all other places, should be the center of feeling. There should be no judgment, no comparing one person with another. It should be a free place. I believe that if you have a classroom of thirty students, in which it is regarded that freedom reigns, you have thirty teachers.

*Louis Kahn
Speech: International Design Conference,
Aspen*

Program for the Classroom Building
 Grades One to Six, 260 Students

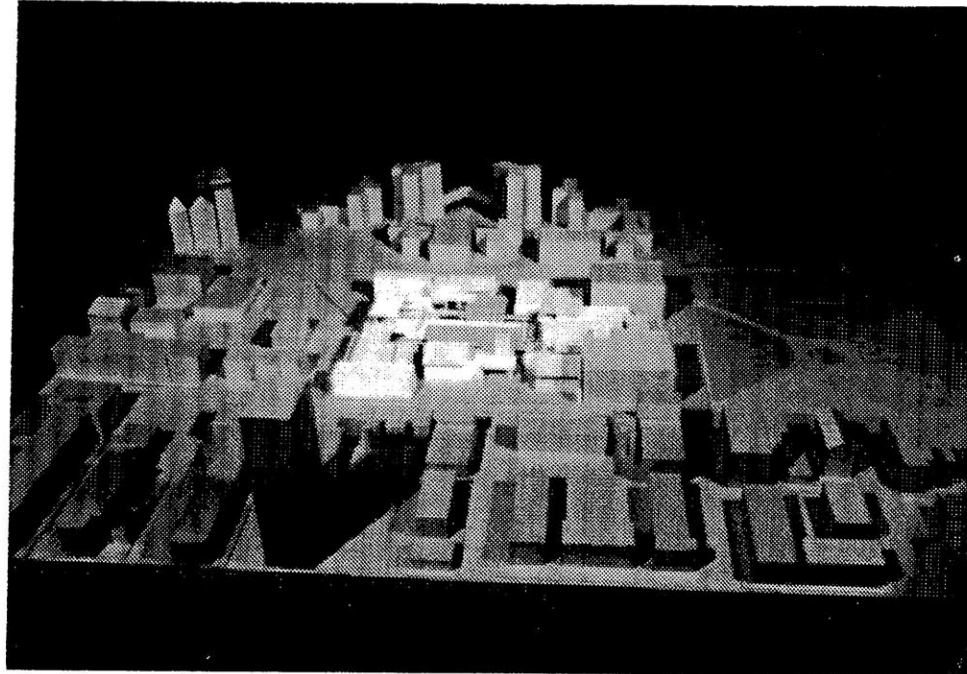
| <u>Administrative</u> | <u>Square Footage</u> |
|--|-----------------------|
| Teacher's Office (13 @ 40 sf each) | 520 |
| Teacher's Lounge/Conference | 350 |
| Parent's Room | 280 |
| Adult Restrooms (4 @ 120 sf each) | 480 |
| Storage (6 @ 70 sf each) | 420 |

| <u>Facilities</u> | |
|---|--------|
| Computer Resource | 700 |
| Art Room | 700 |
| Music Room | 700 |
| Ecology/Science | 600 |
| Classrooms (13 @ 830 sf each) | 10,790 |
| Children's Restrooms (5 @ 35 sf each) | 175 |

Zones In-Between

| | <u>Square Footage</u> | <u>Expected Occupancy</u> | <u>Expected Activities</u> |
|-----------------------------------|---------------------------|-------------------------------|---|
| Living Room/Library/Display | 600 | 5 - 25 | reading/story-telling/ teaching/informal mtg./ relaxation |
| Interactive, Hands-On Zone | 600 | 3 - 25 | teaching by innovation |
| Small Group Gathering | 350 | 2 - 20 | studying/some classroom activities |
| Entry to Classroom | 250 | 1 - 10 | reading/socializing |

Fig. 28



Site model

5 DESIGN EXPLORATIONS

Research has indicated that smaller schools result in a close-knit environment for children.¹⁴ In order for the elementary school to be a special learning place, students need to be interacting closely with one another and to share responsibility. In addition, students should be taught by dedicated, caring teachers and known personally by a dynamic principal. Considering the amount of time that children spend in school, the school is like a second home for them. As such, the school needs to be a place where children feel safe, secure, and cared for. Given the problems that some children may face at their own homes in this particular Boston neighborhood, the school may be the *only* home for them.

5.1 The Site Plan

The metaphor of the school as home generated a conception of the elementary school as being several structures joined together to create a community of learning--a "school village" for the students and staff. The structures encompass an administrative building; a gymnasium/auditorium complex; a cafeteria/kitchen/library complex; a kindergarten building; and two classroom buildings housing grades one through six. As opposed to the single, anonymous, large urban school, separating different functions into smaller building clusters strengthens the sense of belonging and identity for the student. The classroom buildings are like individual homes, each with its own identity and personality as reflected by its occupants. Passage to and from one building to the next is facilitated by an arcade system that allows one freedom to roam with a protective covering over one's head.

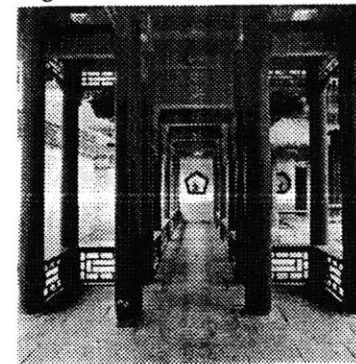
...(a) clear evidence of greater participation in school activities by small school students than by large school students...The differences were so great as to suggest not only that they were statistically significant differences but that they pointed to a different way of student life in small and large schools.

*Barker and Gump
Big School, Small School*

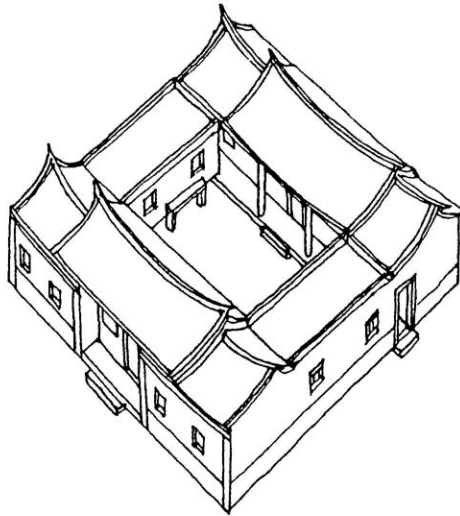
The great design of the school should be to make it, as much as possible, like a family...

*Joseph A. Allen, Superintendent
The Irony of Early School Reform*

Fig. 29



Arcade: Chinese courtyard house

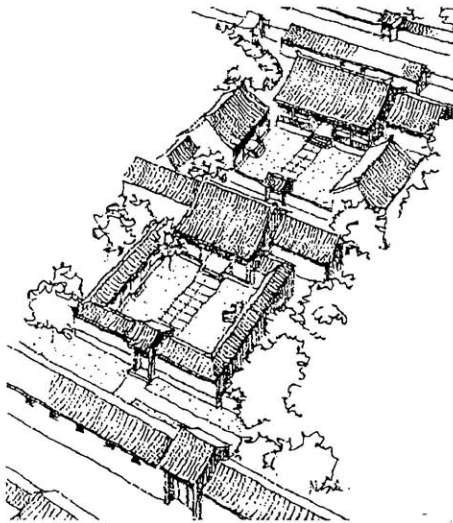


Single courtyard house

Fig. 30

The Chinese courtyard house is used as a model in designing the site plan of the elementary school. It should be noted that the metaphor of the Chinese courtyard was not the initial driving force in the design. The model was employed when the site plan that was developing had a strong correlation, both physically and philosophically, to aspects of the Chinese courtyard. The similarity is logical and inevitable when one considers the metaphor of the school as home, and the notion of a "school village" for the children.

The architecture of the traditional Chinese courtyard house embodies notions of security, family cohesiveness, and public versus private.¹⁵ The basic single courtyard house type can be further defined into a house type with two courtyards; one is more public and the other is more private. In the site plan for the school, the more public courtyard is the common playground between classroom buildings. The more private courtyard is the space between the common playground and the main entry of a particular building.



Multiple courtyard house

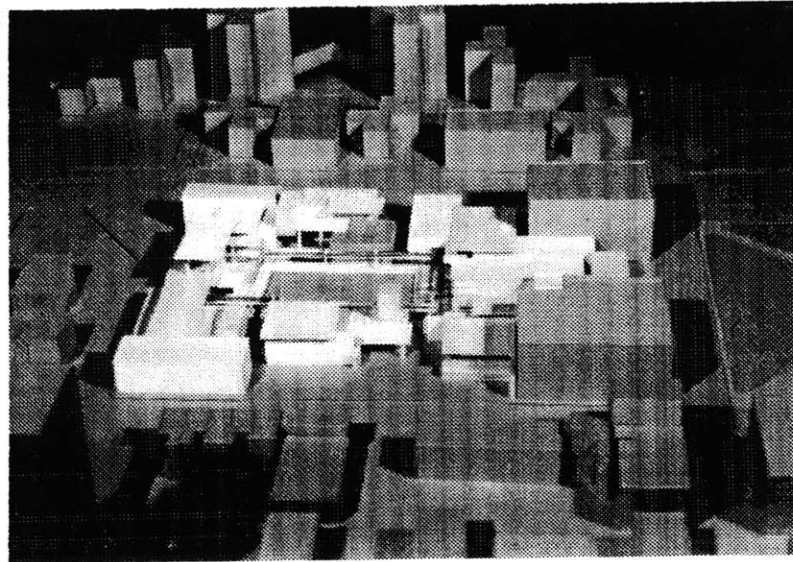
Fig. 31

Looking at the overall scheme, we can say that the common playground is the public portion of the site, the individual buildings are the private portions of the site, and the area between the common playground and the entry to a particular building is the space in-between for the site.

Mould clay into a vessel; from its non-being (in the vessel's hollow) arises the utility of the vessel. Cut out doors and windows in the house. From their non-being (void) arises the utility of the house. Therefore by the existence of things we profit. And by the non-existence of things we are served.

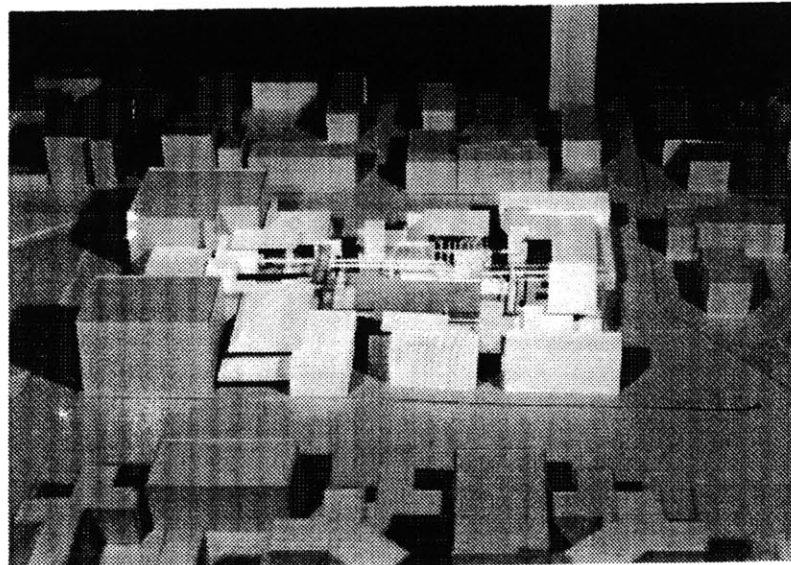
The philosophy of Lao-tze and Taoism was influential in development of the courtyard.
Lao-tze, Tao Te Ching

Fig. 32

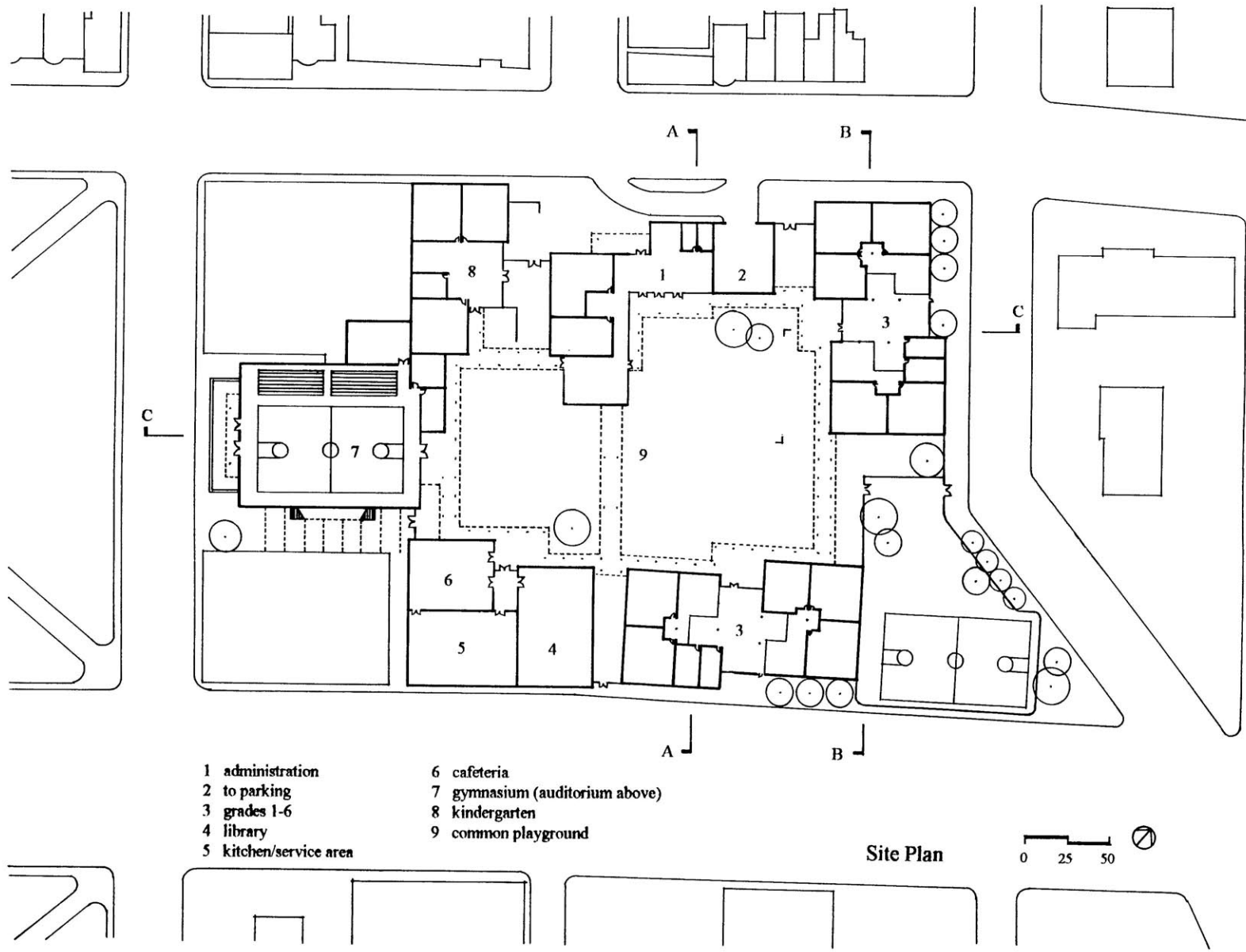


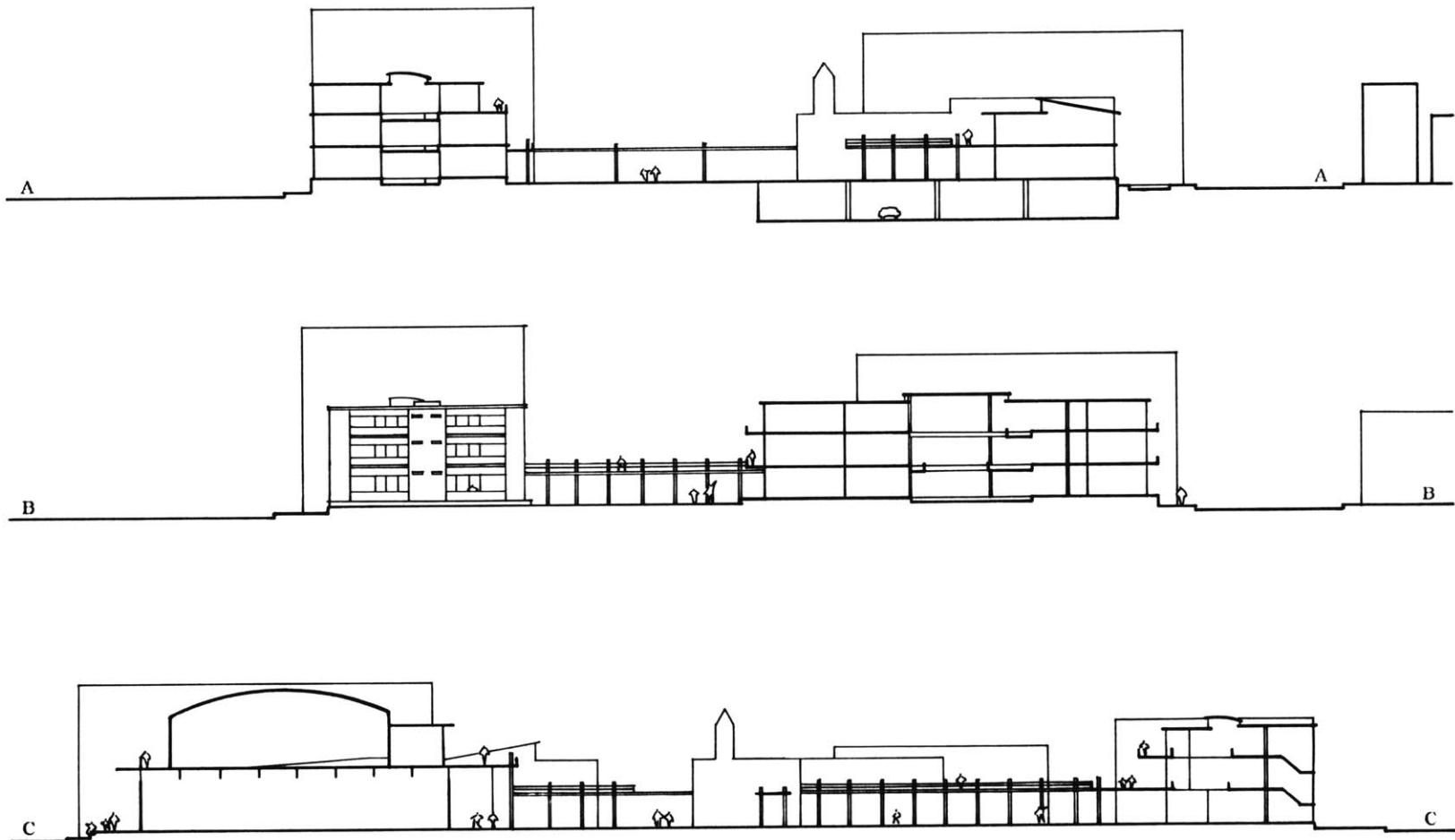
View of site model from Shawmut Avenue

Fig. 33

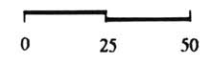


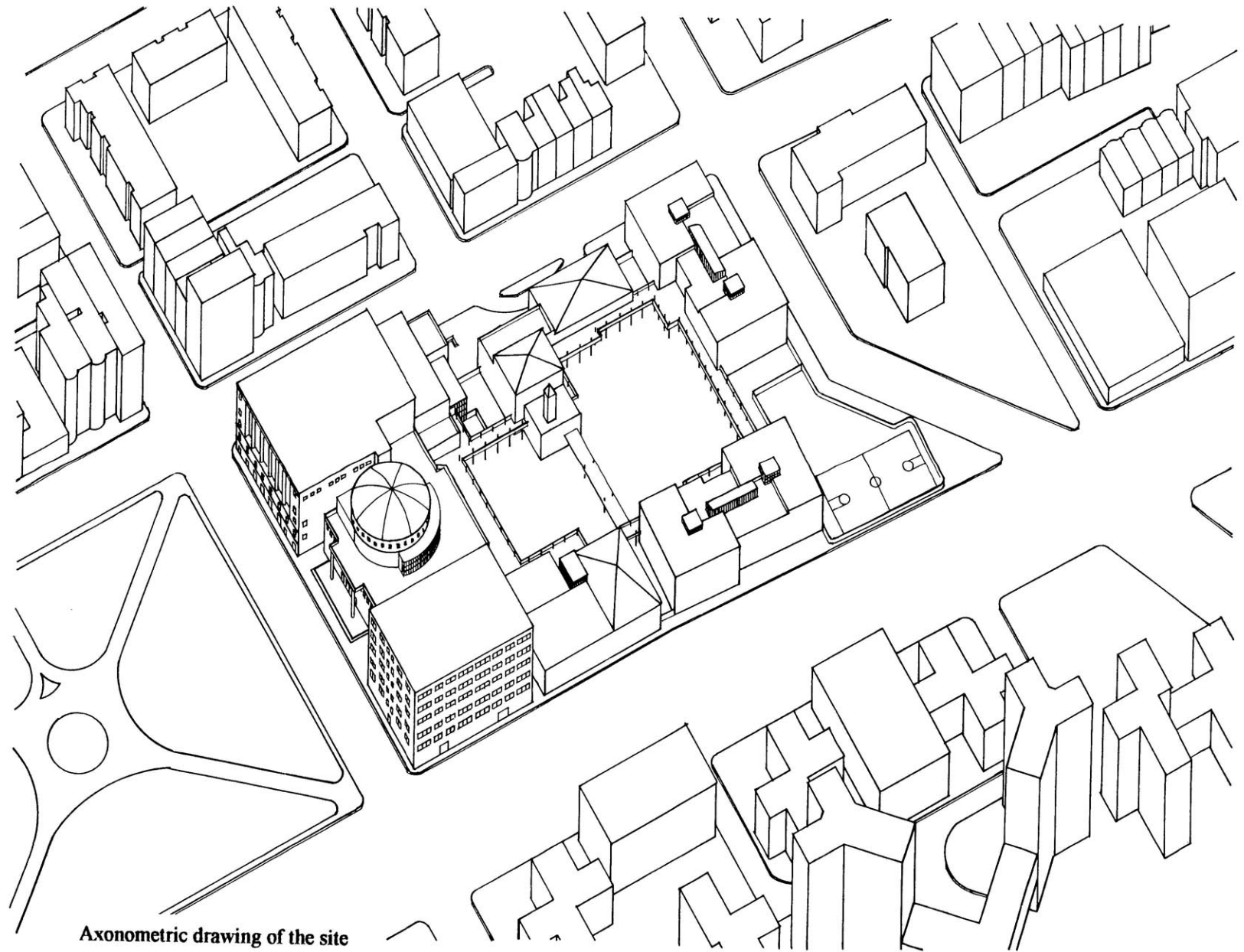
View of site model from Washington Street



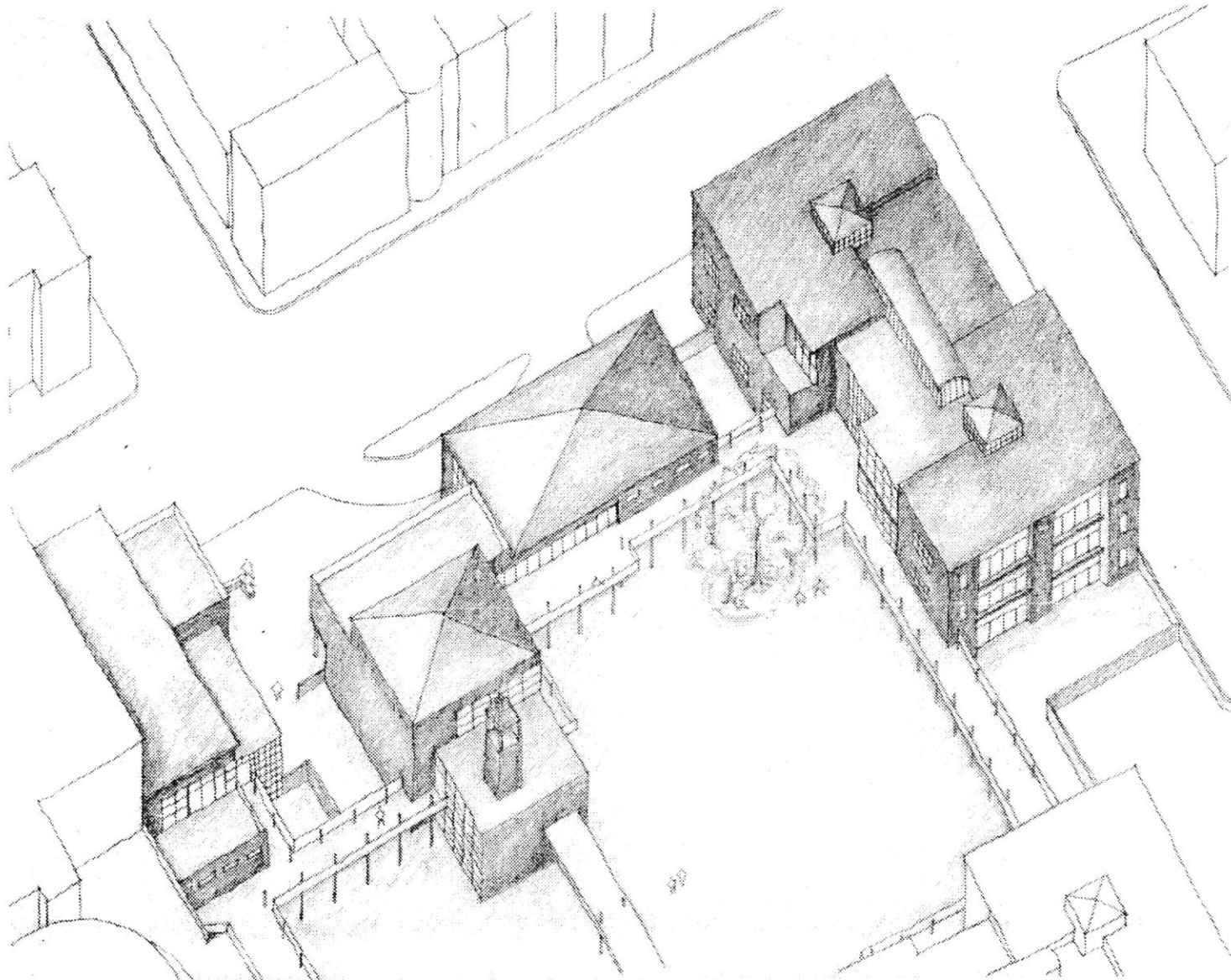


Sections through the site



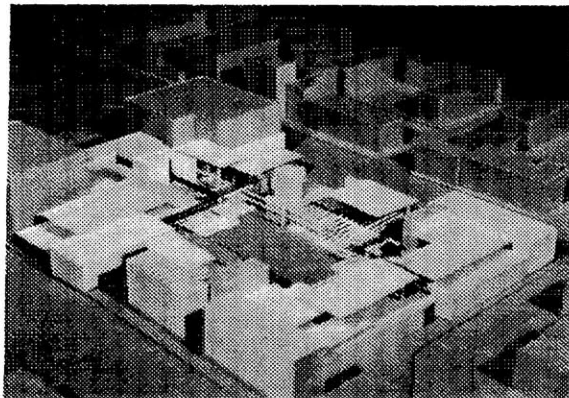


Axonometric drawing of the site



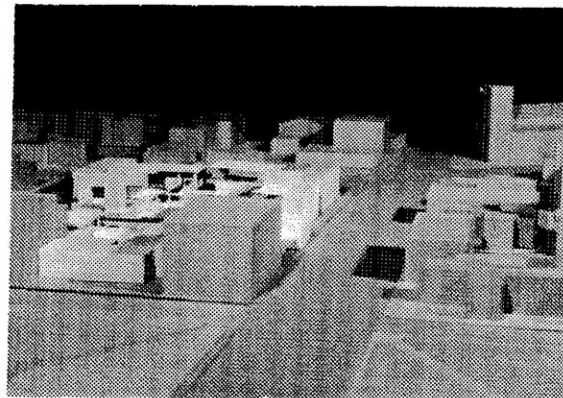
Axonometric drawing showing interior courtyard

Fig. 34

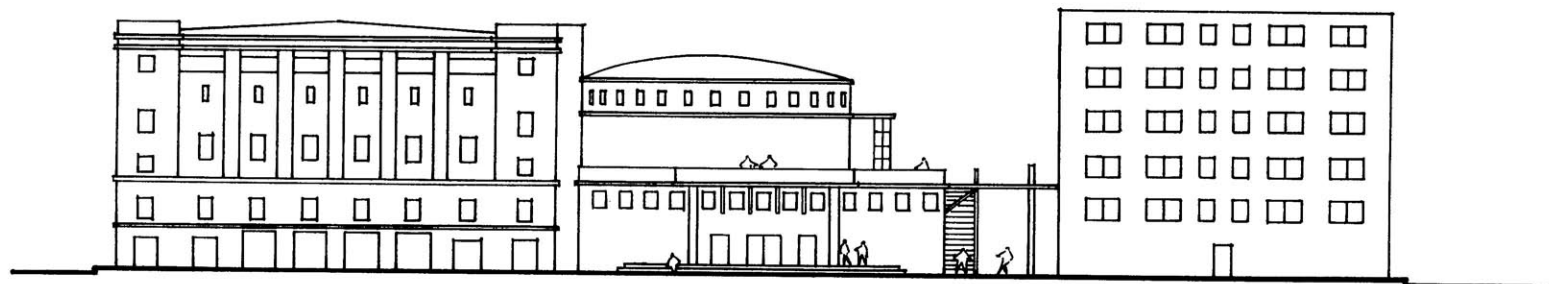


View of interior courtyard

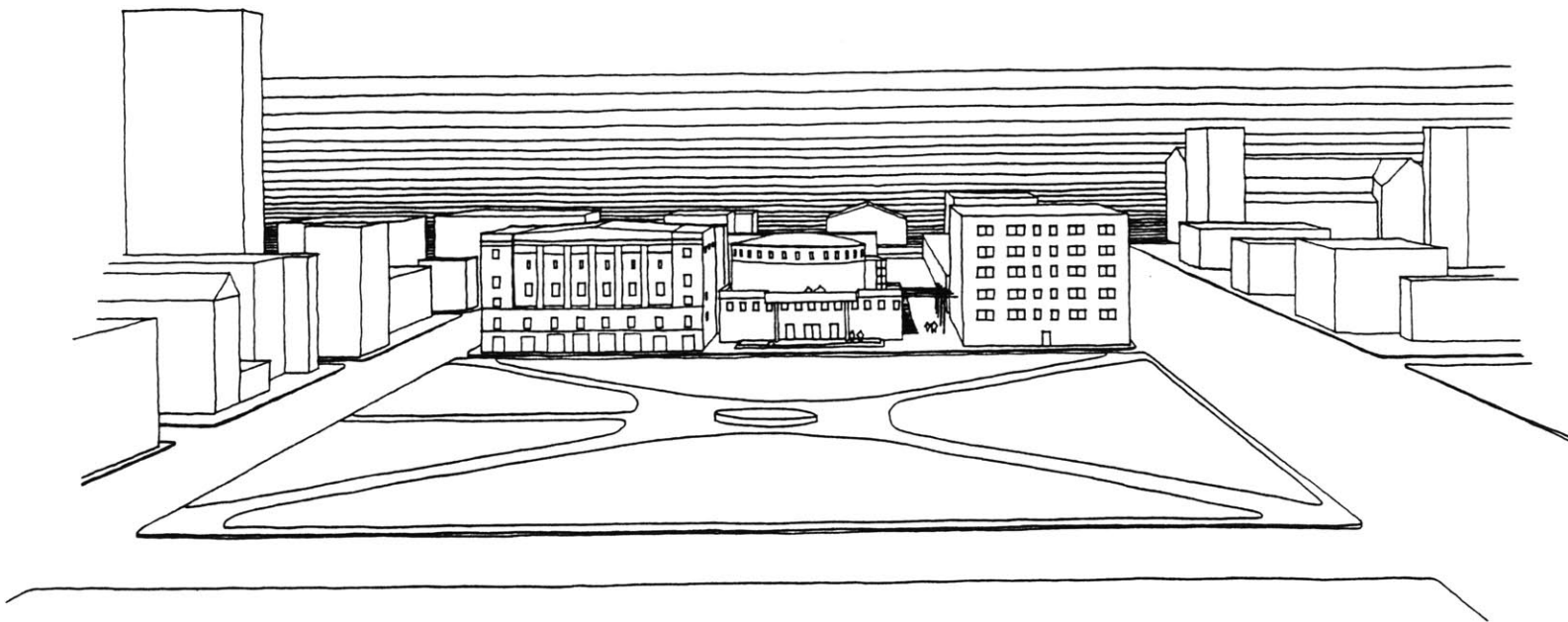
Fig. 35



Building up the urban edge on Washington Street

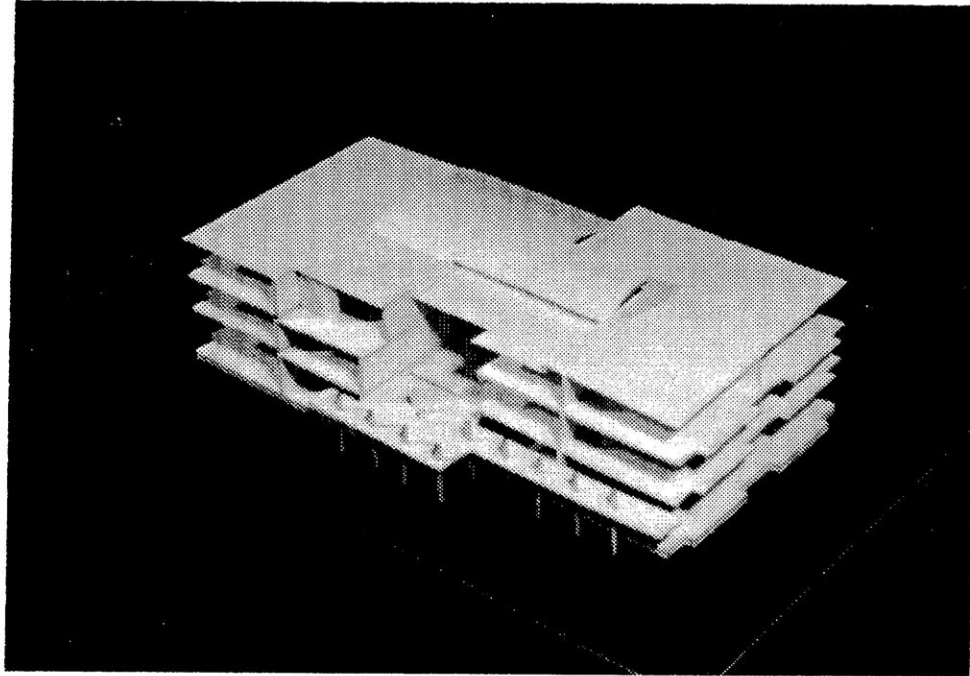


Elevation at East Brookline Street



Perspective view of the site at East Brookline Street

Fig. 36



The classroom building

5.2 The Classroom Building

Of the two classroom buildings accommodating grades one through six, the one near the intersection of West Dedham Street and Shawmut Avenue was chosen for further development. The two buildings are slightly different due to differences in solar orientation and location within the courtyard. For the most part, however, they are similar since they are conceived of as twin buildings.

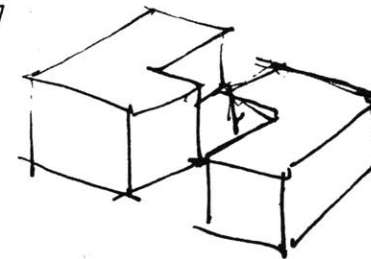
The driving concept for the classroom building is two L-shaped blocks of classrooms meeting at a central core of activity that serves as the heart of the school. This central core is the common area, the public portion of the classroom building. The classrooms, private to teachers and students, is the private portion of the building. The zone in-between the central core and the classrooms is the interstitial space. It is neither public nor private, but somewhere in-between.

The interstitial space can be used as shared teaching, additional library space, or however the teachers and students would like to use it. On each floor of the building, the interstitial space is one foot higher than the communal common area. This level change establishes a degree of privacy for the classrooms and interstitial space, yet allows for casual social exchange with the communal areas.

If the measure of a good educational environment is one where both students and teachers may grow by their own initiative, then a good school building will be one allowing its inhabitants to grow, changing their routines easily and quickly.

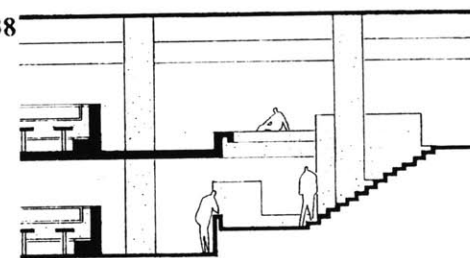
*Peter Prangnell
Harvard Educational Review*

Fig. 37



Conceptual sketch: the classroom building

Fig. 38



The Weesperstraat Student Accommodation by Herman Hertzberger illustrates a similar level change

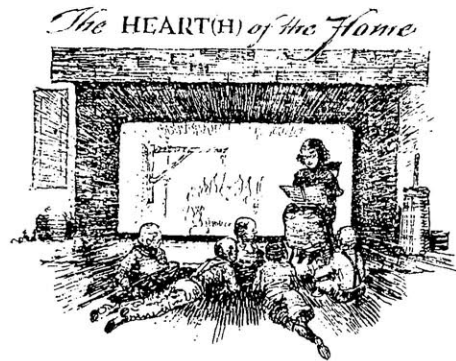


Fig. 39

A traditional symbol of the home

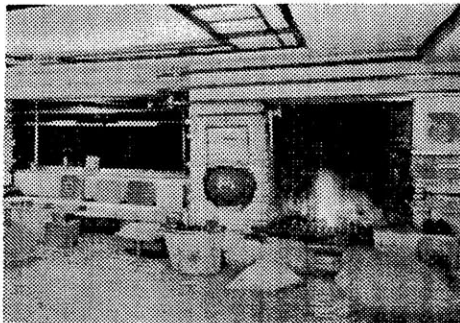


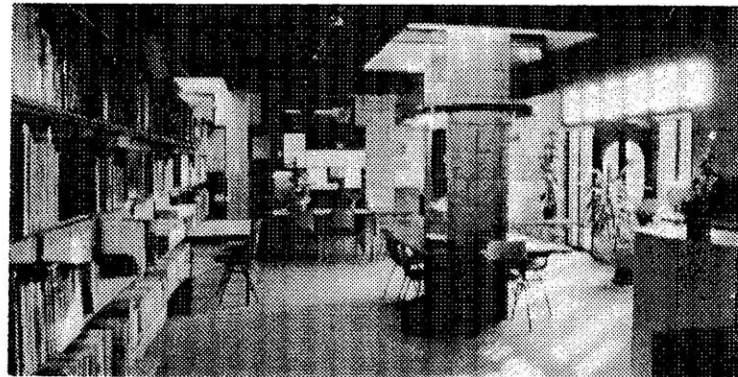
Fig. 40

Living room at Fallingwater
by Frank Lloyd Wright

An essential feature of the common area is the fireplace on the second level. The hearth has traditionally symbolized the heart and soul of the home. Since the school is seen as a second home for the children, and the common area is seen as the heart of the school, it seems fitting to incorporate the time-honored tradition of the fireplace as a central feature of social gathering for the school. Surrounded by books, student works, and comfortable sofas and rugs, it can serve as an alternate teaching space, an informal teacher/parent meeting room, or simply as a place to sit and relax.

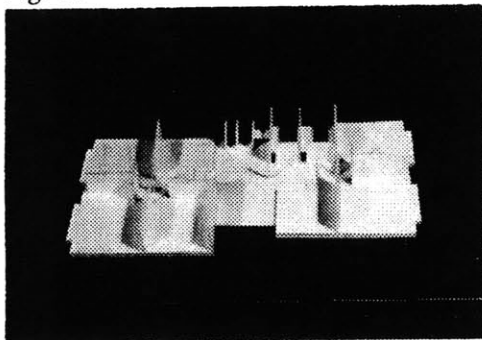
The challenge of this thesis is to make the zones of public, private, and in-between work together to achieve an architecture that promotes social interchange. And within each of these three zones, yet another level of public, private, and in-between can be achieved to allow for large group activities, small group activities, and individual contemplation. It is fascinating how the ideas of public/private/in-between is relevant from the largest to the smallest scale in the design. We have already seen its application in the site plan. Now we see its application at the building level. Next, we will see its application at the classroom level.

Fig. 41



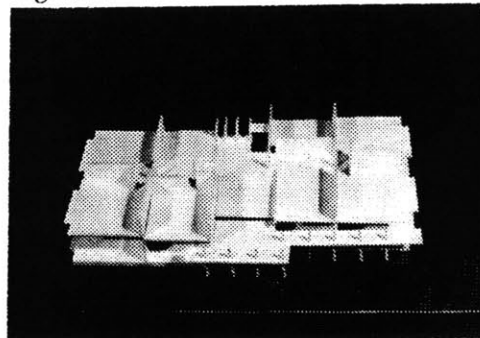
The Montessori School in Delft has a library with a fireplace

Fig. 42



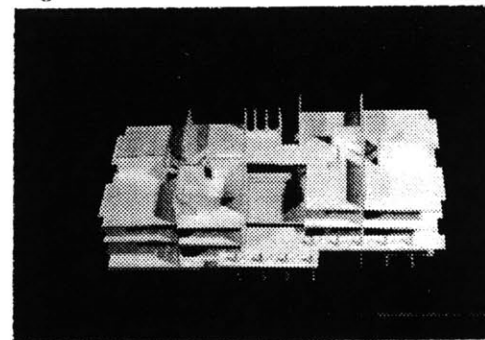
Ground level

Fig. 43

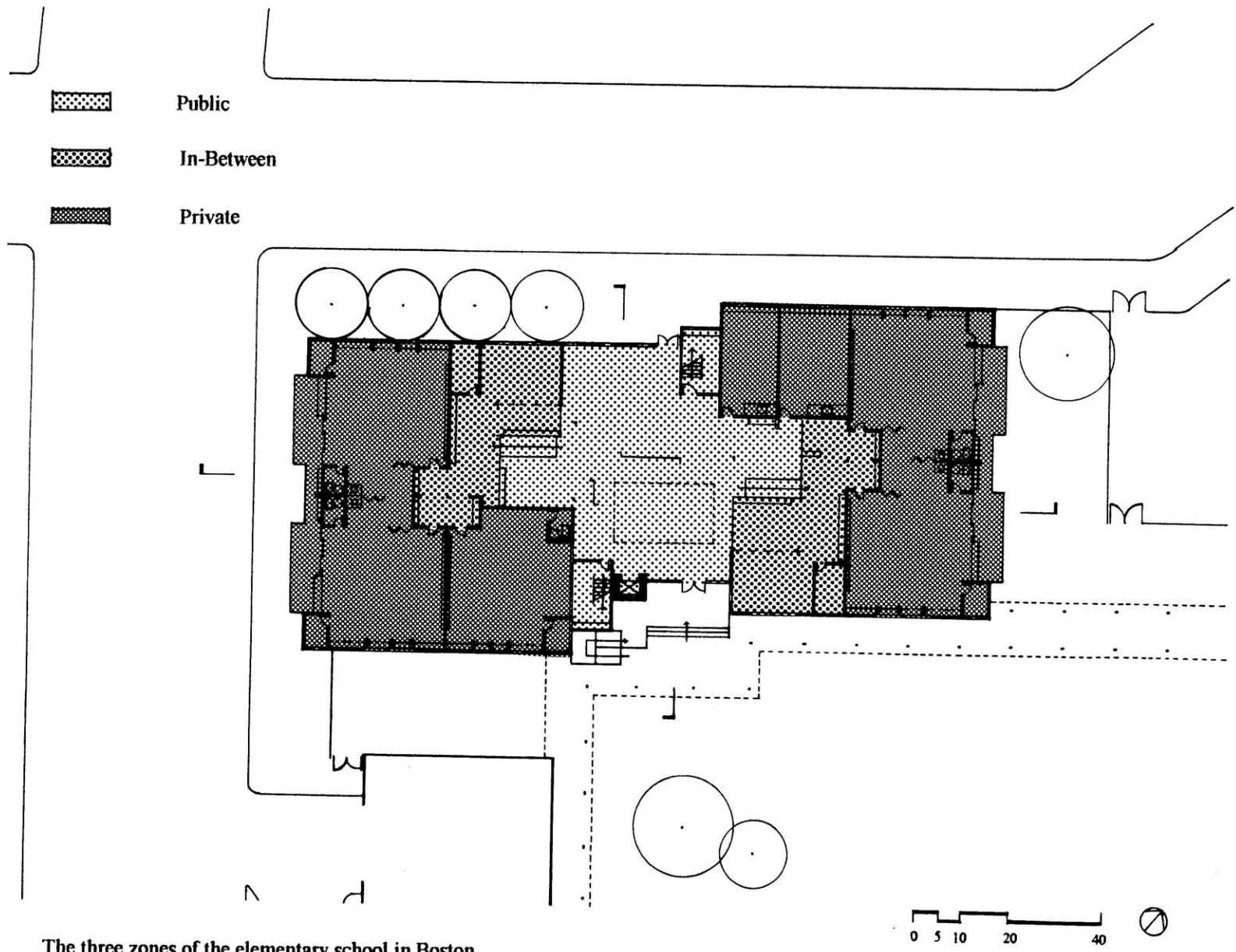


Second level

Fig. 44

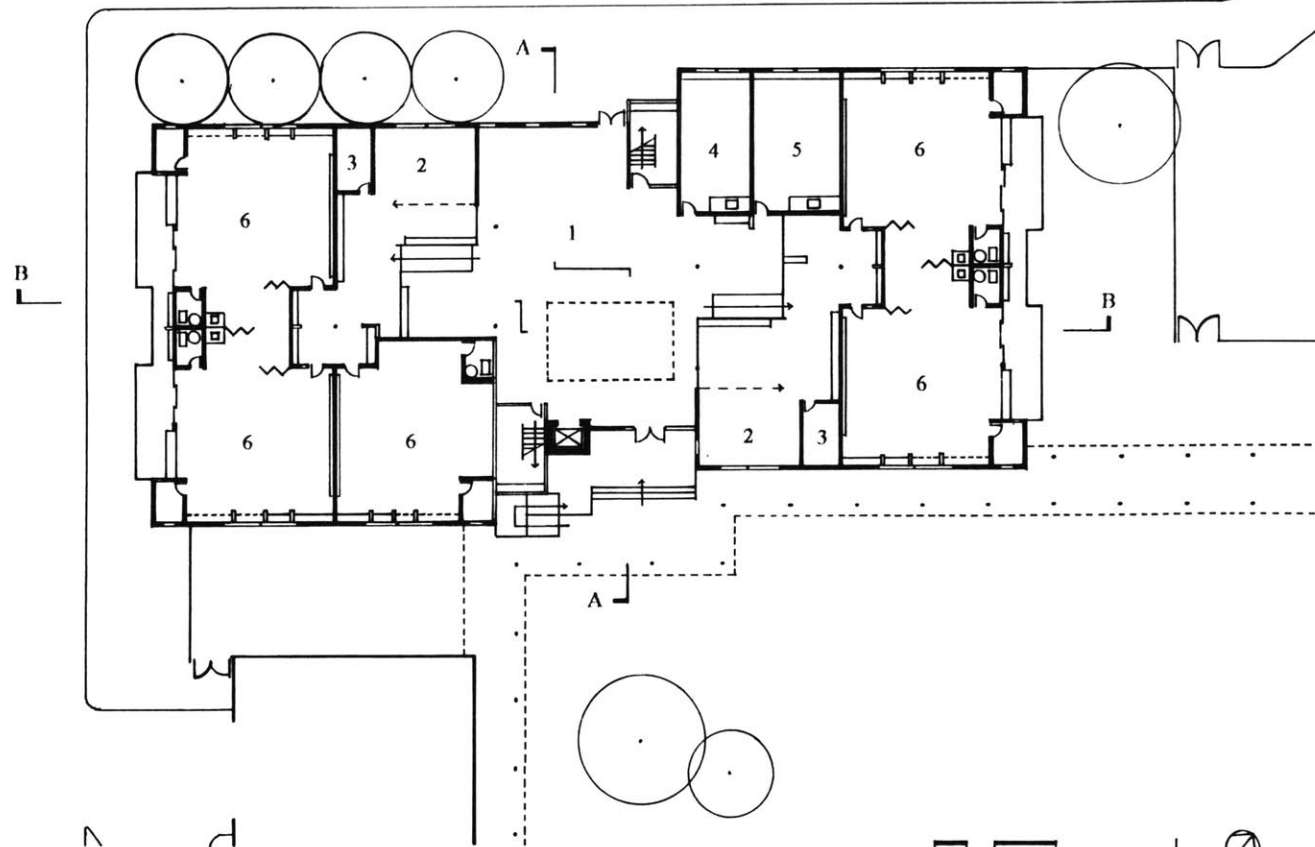


Third level

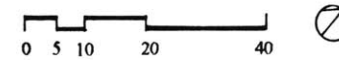


The three zones of the elementary school in Boston

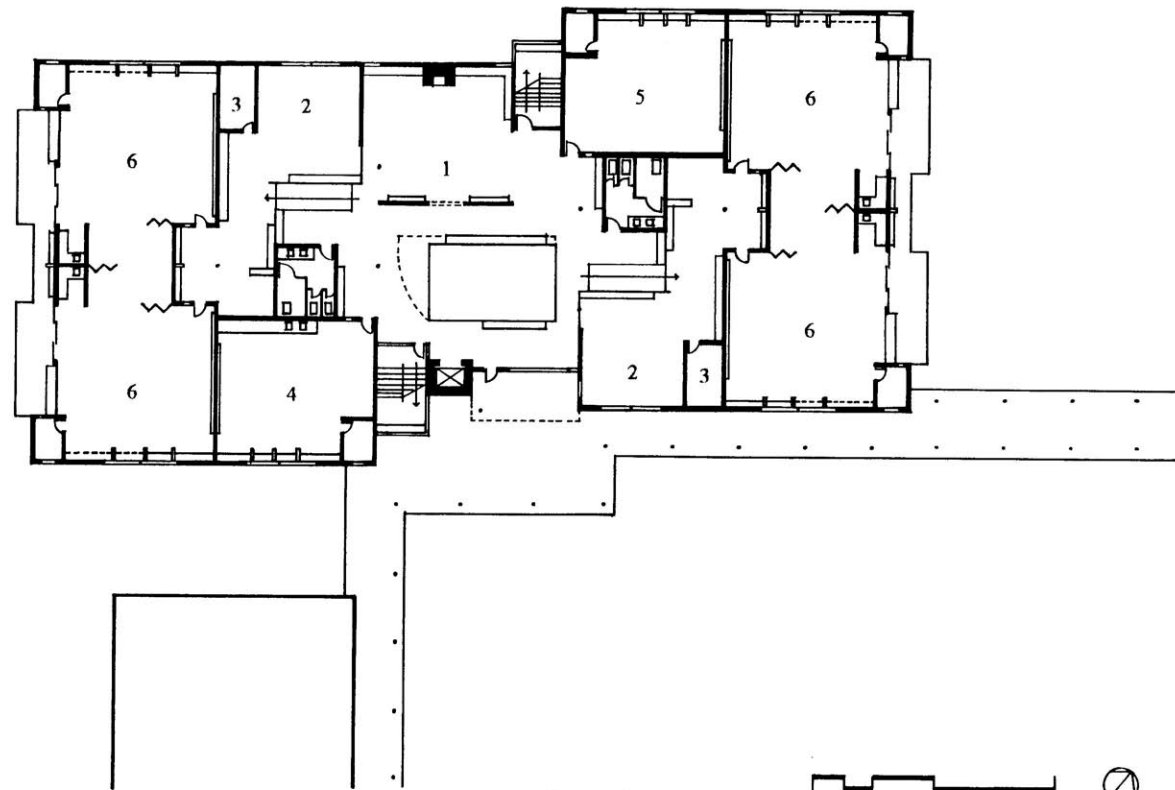
- | | |
|----------------------|-------------------------------|
| 1 common area | 4 parent's room |
| 2 interstitial space | 5 teacher's lounge/conference |
| 3 storage | 6 classrooms: grades 1-2 |



Ground Floor Plan



- 1 common area
- 2 interstitial space
- 3 storage
- 4 art room
- 5 music room
- 6 classrooms: grades 3-6

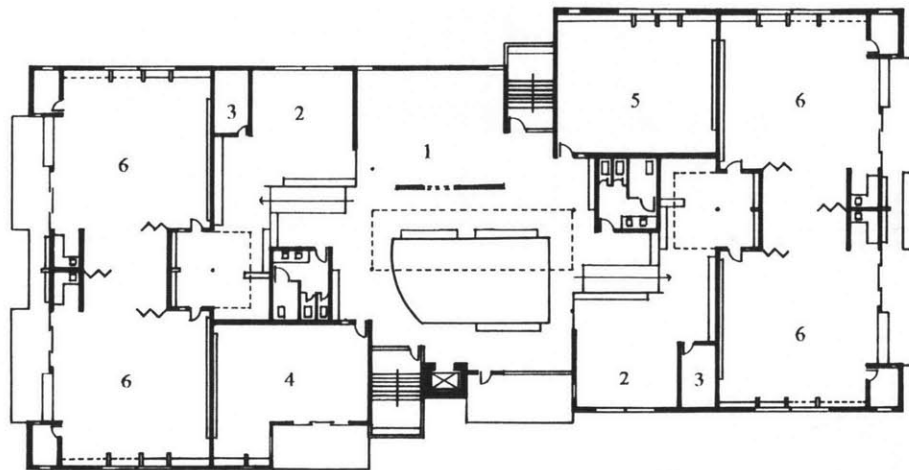


Second Floor Plan

0 5 10 20 40

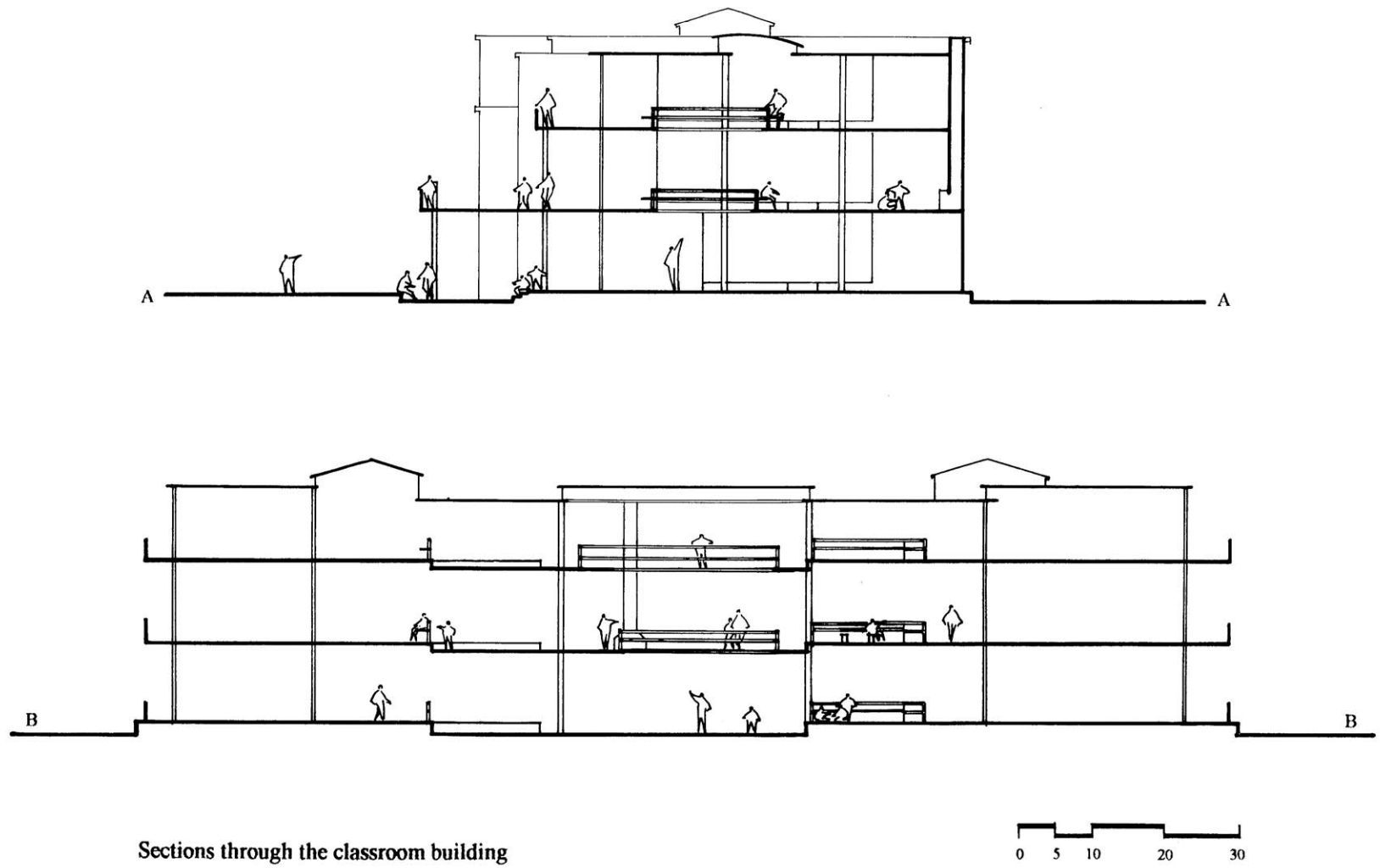


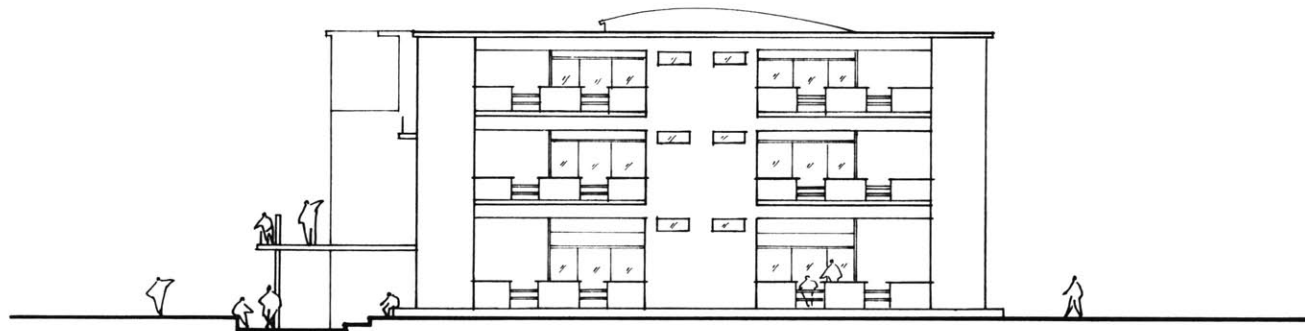
- 1 common area
- 2 interstitial space
- 3 storage
- 4 ecology/science room
- 5 computer resource room
- 6 classrooms: grades 3-6



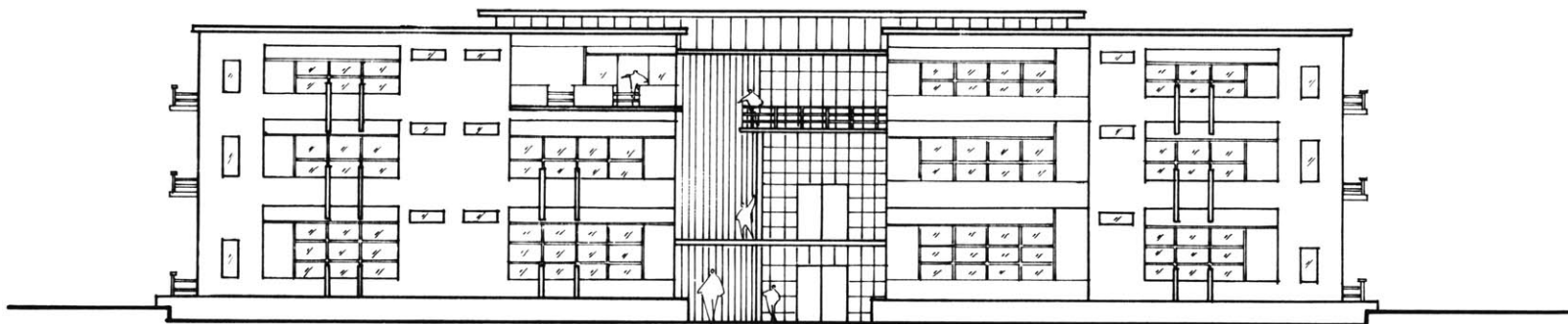
Third Floor Plan







Southeast Elevation



Southwest Elevation

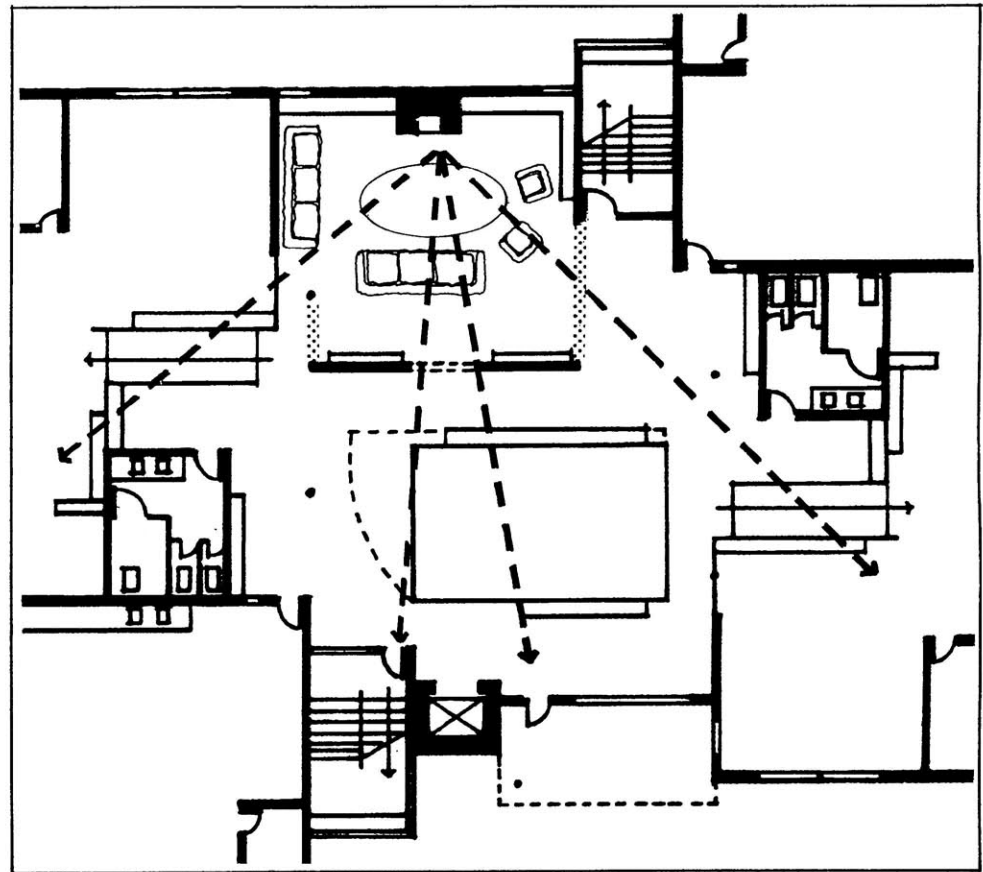
Elevations of the classroom building



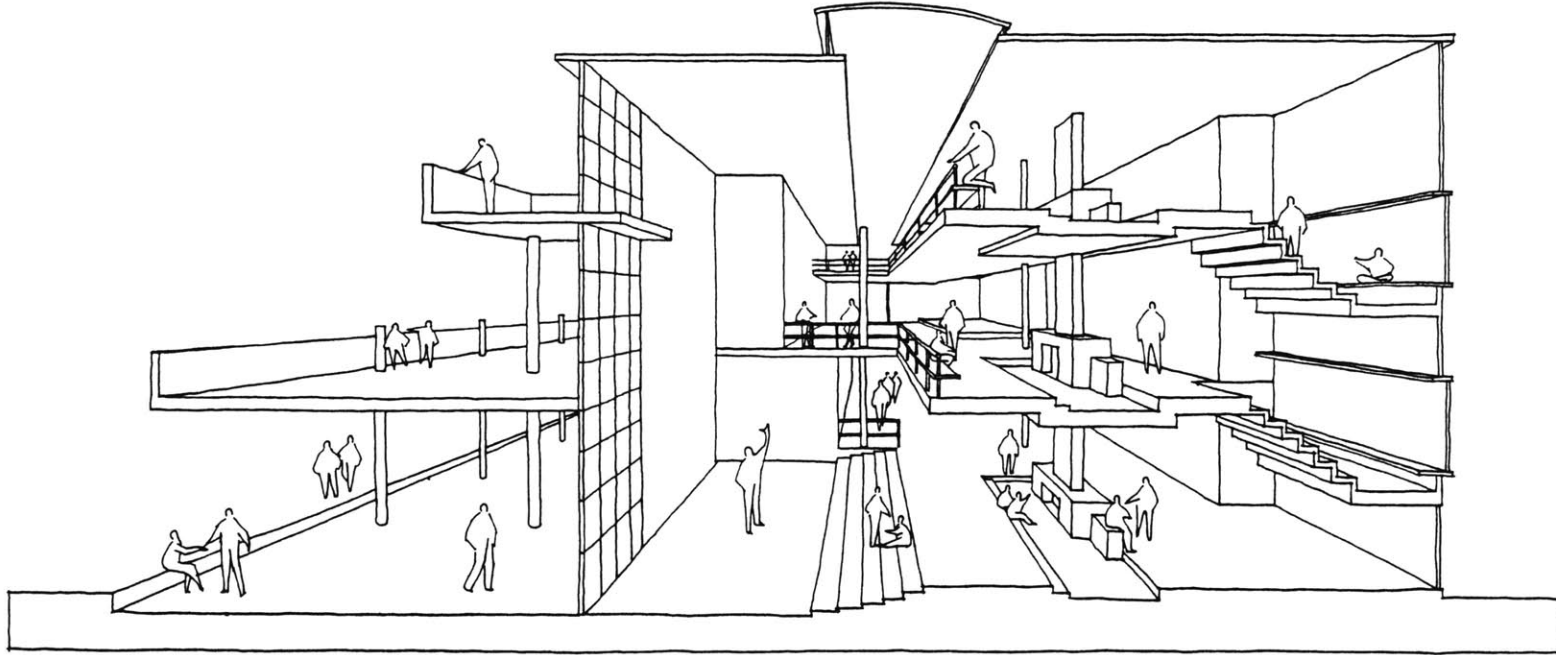
Visual supervision



Movable partition can provide more privacy within the common area



The second level fireplace



Sectional perspective view showing the common area of the classroom building

Teachers, furthermore, teach in collaborative settings; four to five teachers work in physically contiguous rooms and with the same set of students so that they can easily make decisions, alter plans, rearrange schedules, regroup students, share ideas, and observe each other at work.

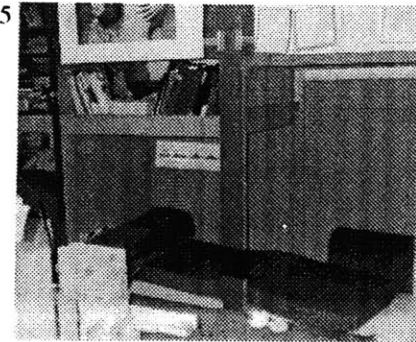
*Deborah Meier
"Reinventing Teaching"*

5.3 The Classroom Cluster

In the development of the classroom cluster, what was applied to the site and building design is applied here as well in terms of the large group, small group, and individual spaces. The teacher's room is not only the teacher's private office, but can be used by the teacher for one-on-one talks with students if the teacher so desires. The bathroom, personal storage space, and individual contemplation areas make the classroom more welcoming and comfortable to students.

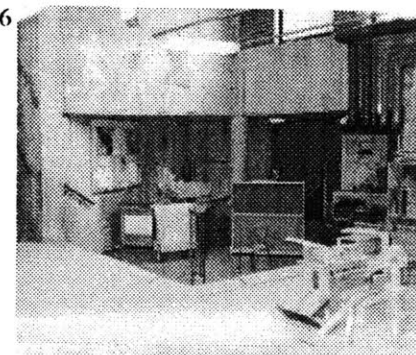
Joint teaching is a common practice among many teachers today.¹⁶ The classroom cluster incorporates a zone of possible exchange to facilitate the practice of joint teaching, and to allow for flexibility in terms of changing classroom size. This zone of exchange is the space between the two classrooms. Its operation involves the use of three partition walls. When all three partitions are opened, teachers and students are free to move from one classroom to another. When the middle partition is closed, the two classrooms of equal size have another small group gathering space for activity use. When the middle partition is open, and one of the outer two partitions are closed, a smaller and a larger classroom is created that can accommodate a growing or decreasing student enrollment.

Fig. 45



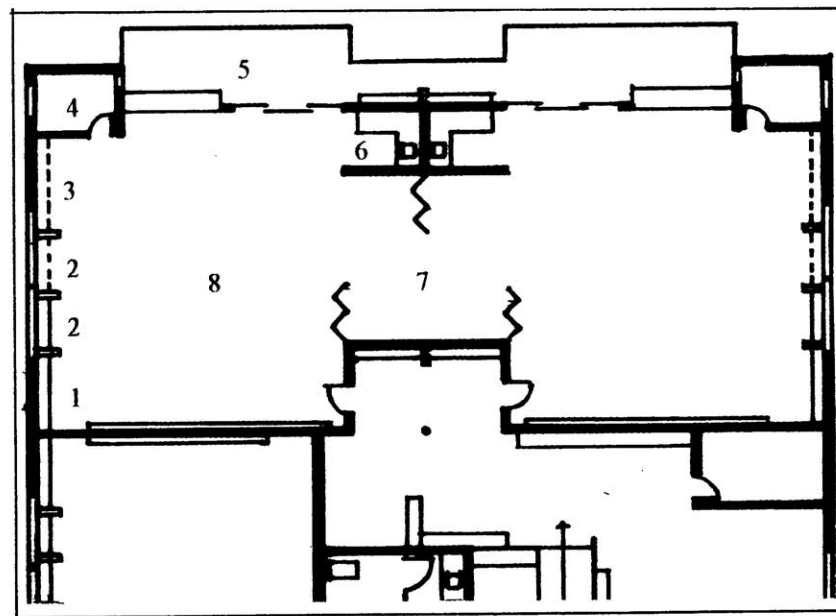
Individual contemplation area at
Fayerweather Street School, Cambridge

Fig. 46



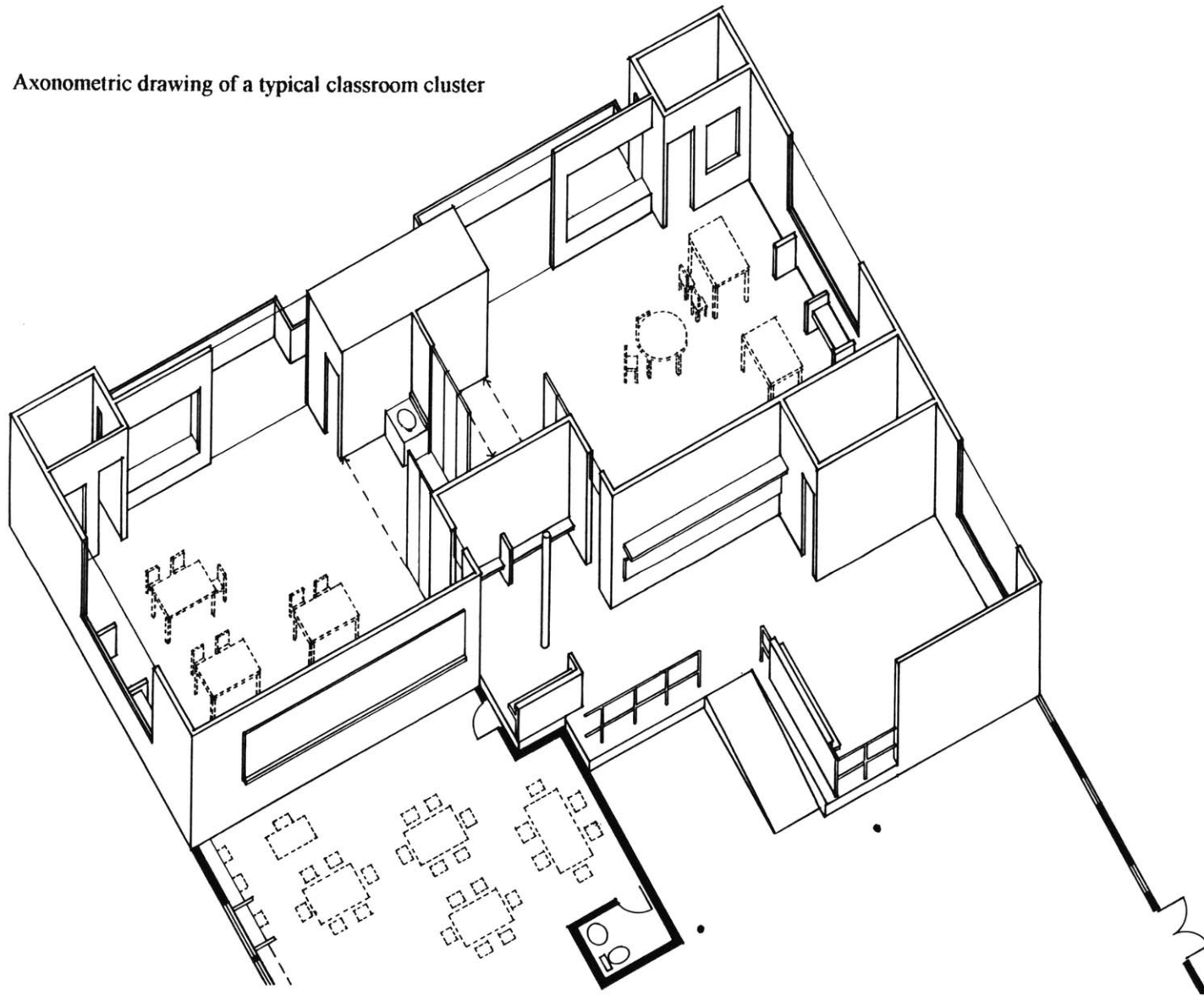
Small group gathering area at
Pierce School, Brookline

- 1 Workstations
- 2 Individual contemplation
- 3 Small group gathering
- 4 Teacher's office
- 5 Balcony/Outdoor instruction
- 6 Wet space/Storage
- 7 Joint teaching/
Small group gathering
- 8 Common area



The classroom cluster

Axonometric drawing of a typical classroom cluster



6 THE EXPLORATION PROCESS

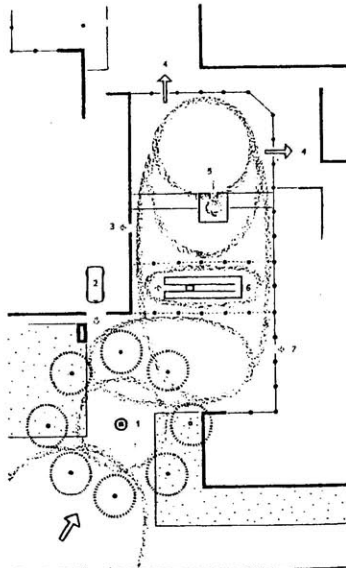
A design tool that proved extremely helpful in narrowing down the wide range of diagrams that developed is concept selection. Concept selection works by way of a chart listing the advantages (+) and disadvantages (-) of each diagram devised. As you progress from one diagram to the next, try to eliminate the negatives while simultaneously retaining all the positives. The ideal diagram is one with all the positives, and none of the negatives. The concept selection chart was utilized in all aspects of the design process; from site, to building, to classroom level.

Another design tool used throughout the exploration process was the bubble diagram as an overlay. The "bubbles" served to delineate places off of circulation paths and its corresponding degree of publicity/privacy. The diagrams served both as a tool and as an analysis of where the design is at relative to the direction it should be going towards.

Fig. 47

Spatial succession of places between city and front door as 'a score for coming and going'

- 1 sculpture
- 2 bus
- 3 service
- 4 child
- 5 seat
- 6 bicycles
- 7 director

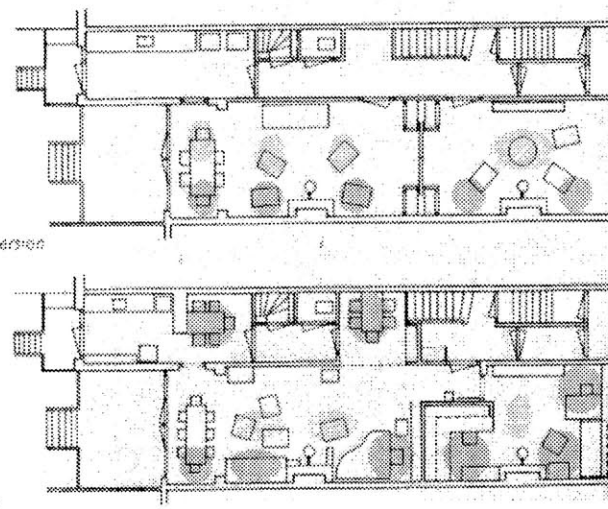


Orphanage by Aldo Van Eyck

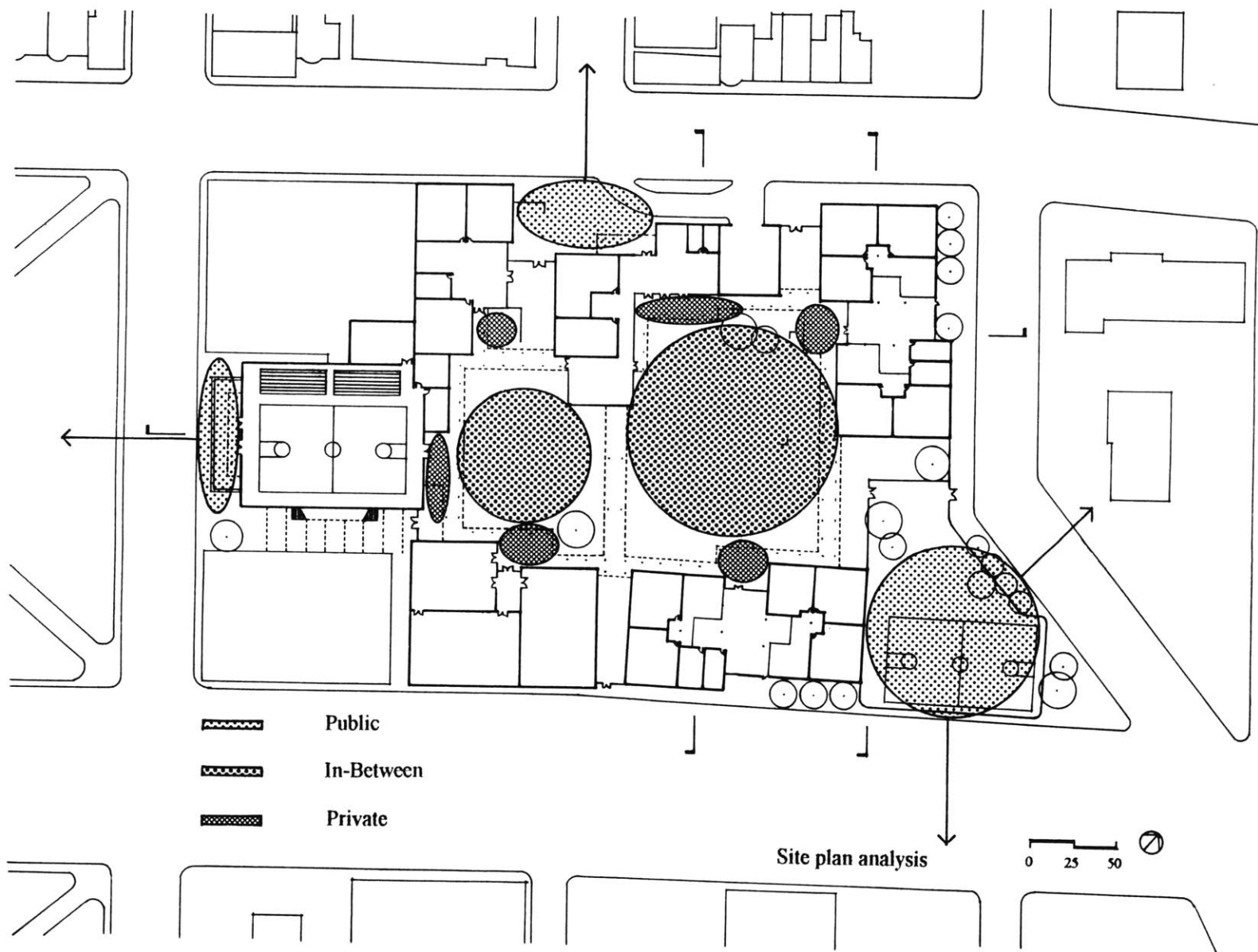
Fig. 48

A: original

B: after conversion



Hertzberger uses a similar bubble diagram in the analysis of a dwelling in Amsterdam

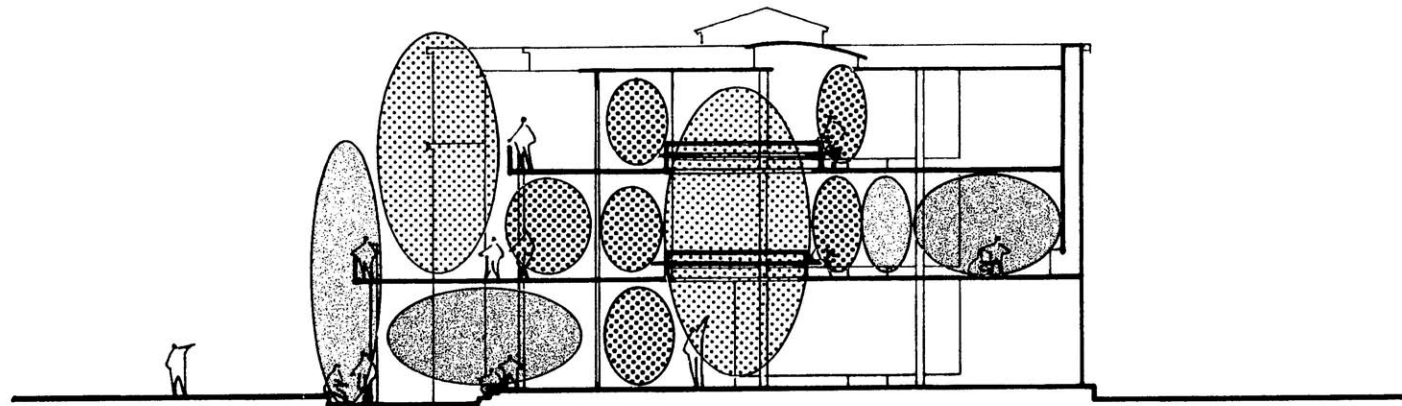




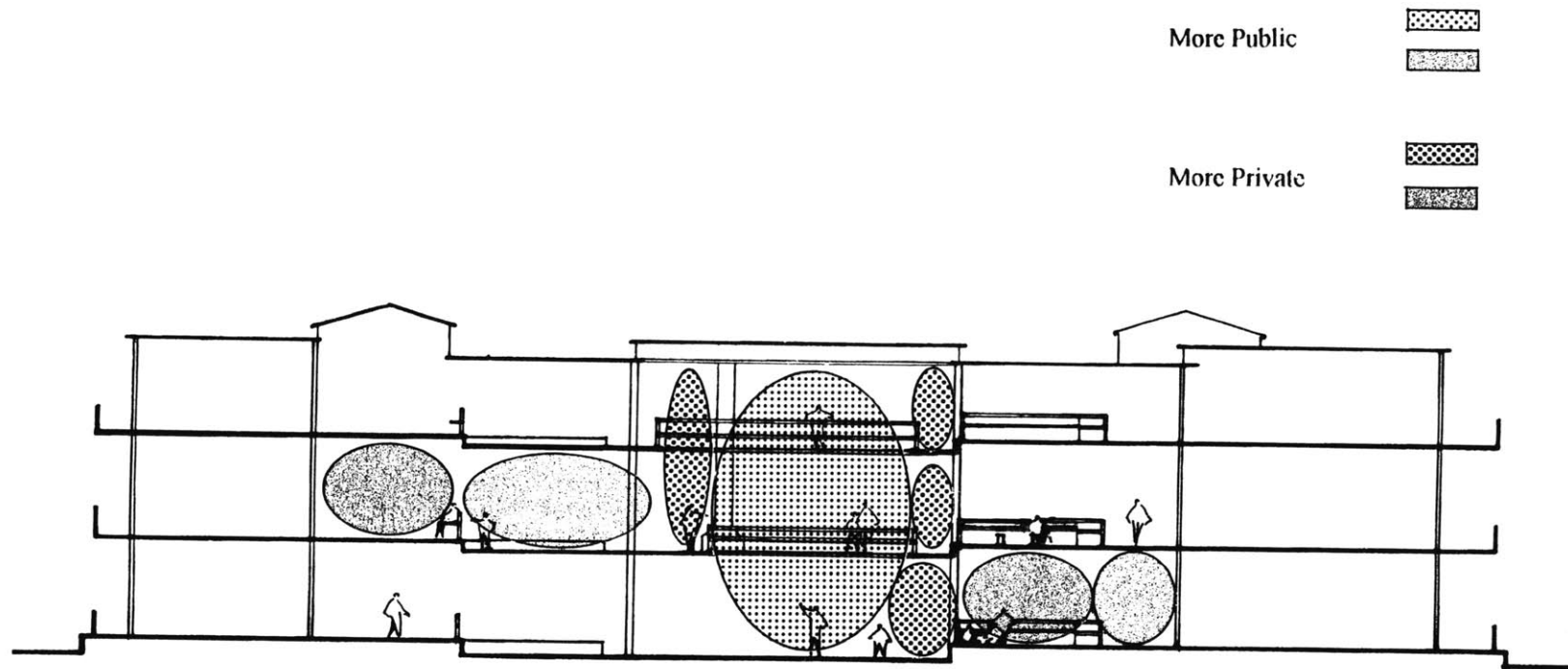
More Public



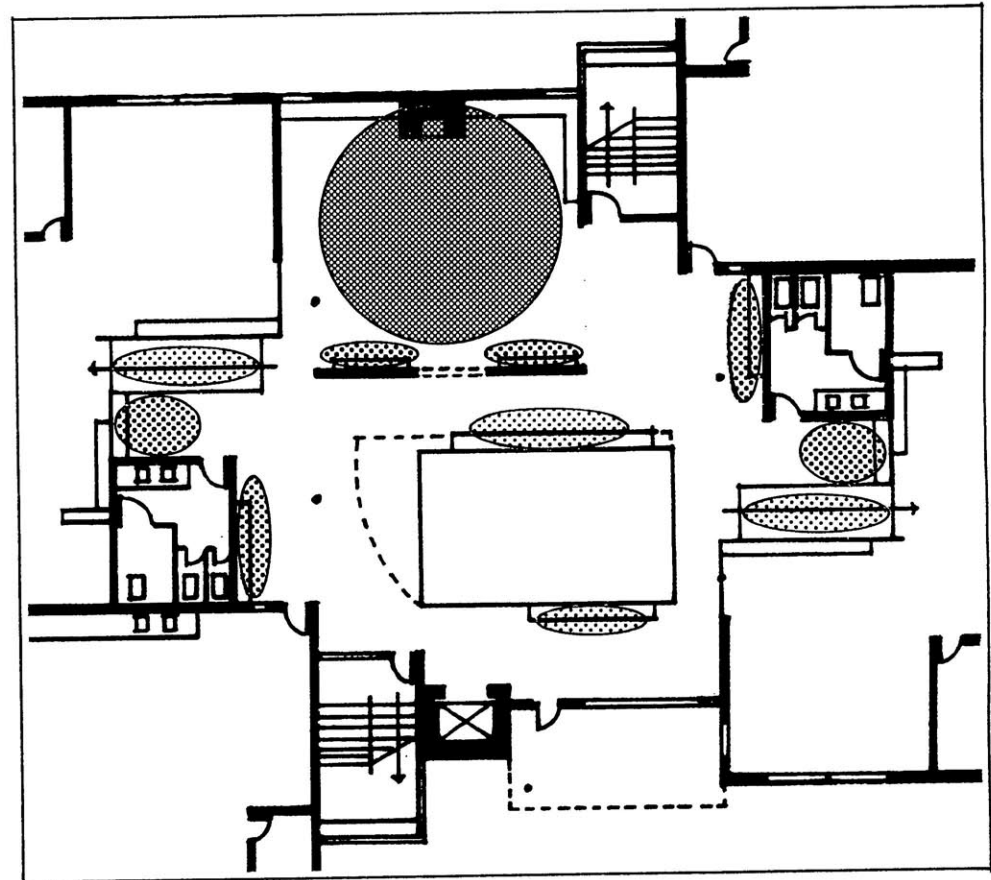
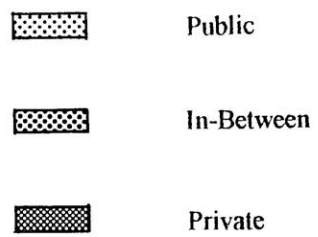
More Private



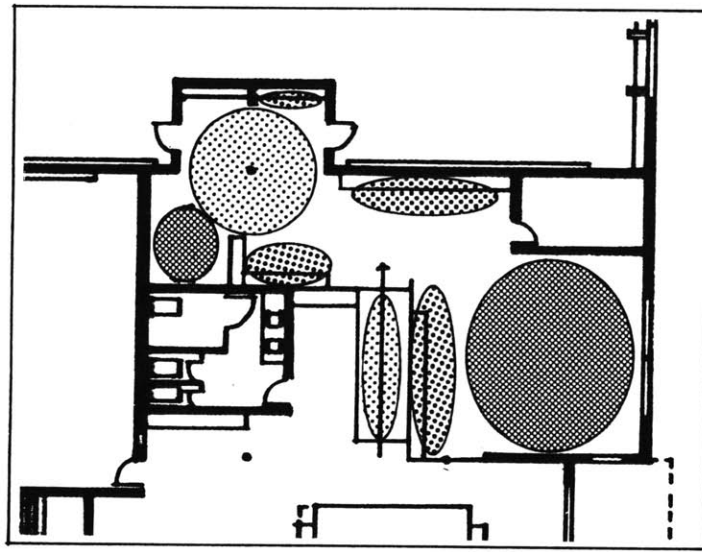
Classroom building section analysis





Classroom building section analysis




Common area analysis

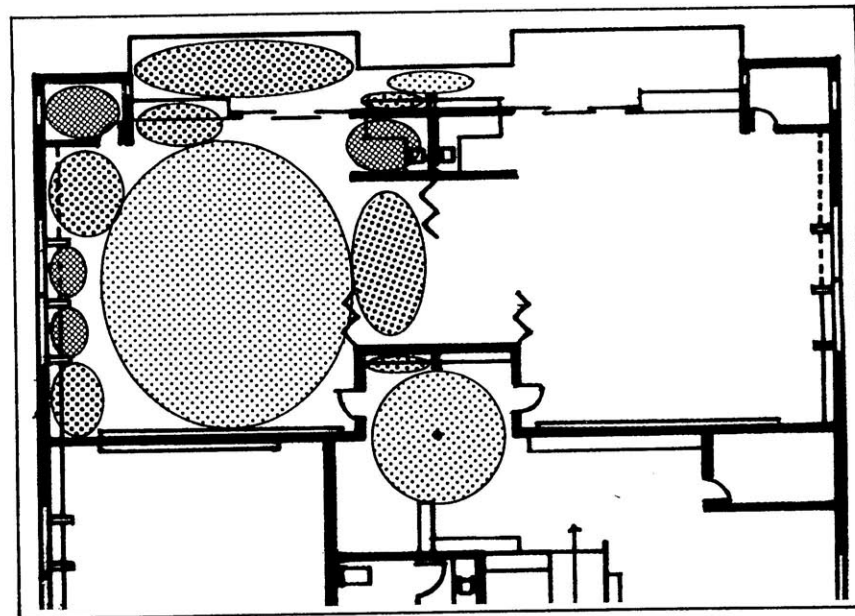
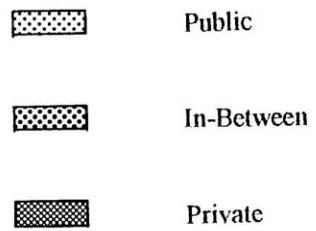


Public 

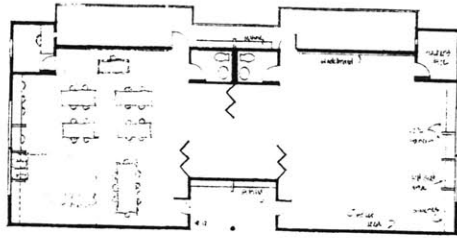
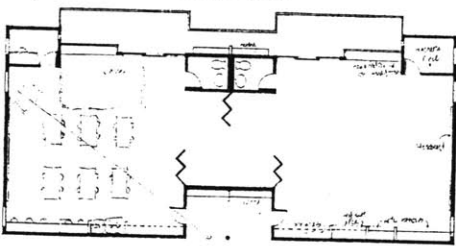
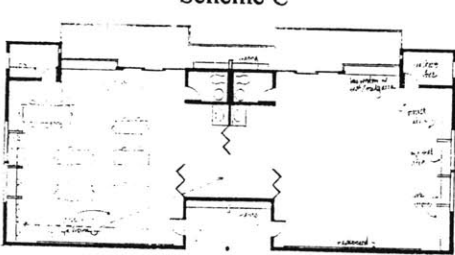
In-Between 

Private 

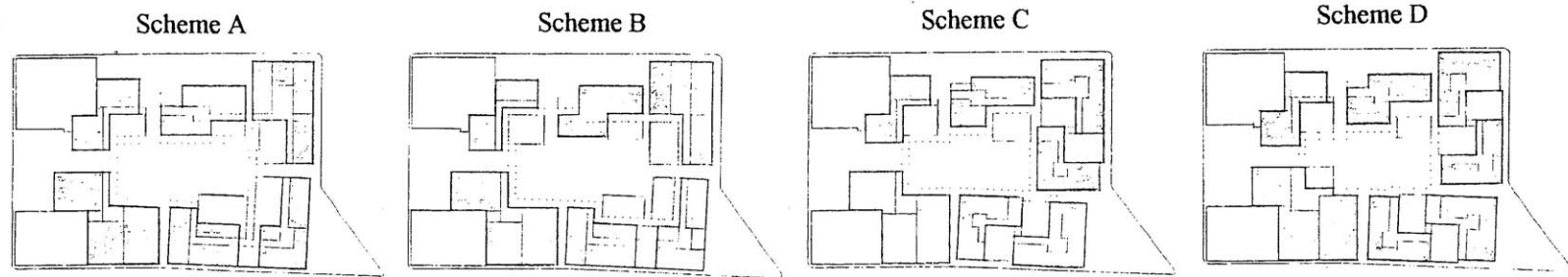
Interstitial space analysis



Classroom cluster analysis

| Scheme A | | Scheme B | | Scheme C | |
|--|---|--|--|---|---|
|  | |  | |  | |
| + | - | + | - | + | - |
| <ul style="list-style-type: none"> · project area · plenty of pin-up space | <ul style="list-style-type: none"> · blackboard next to 2 doors: distracting | <ul style="list-style-type: none"> · balcony door/ bay window · monitor window in teacher's room · if class size increases, teacher can still easily see all students | <ul style="list-style-type: none"> · no project area · blackboard blocks light on major wall | <ul style="list-style-type: none"> · balcony door/ bay window · monitor window in teacher's room · project area · blackboard is not near rear doors or blocking light | |

Concept Selection: The Classroom Cluster



| Scheme A | | Scheme B | | Scheme C | | Scheme D | |
|---|--|---|---|--|---|---|---|
| + | - | + | - | + | - | + | - |
| <ul style="list-style-type: none"> • clear arcade organization • interior courtyards defined at borders | <ul style="list-style-type: none"> • arcade too singular in purpose • no interchange between common and interior courtyard | <ul style="list-style-type: none"> • arcade incorp. into portions of buildings • have interchange between common and interior courtyard | <ul style="list-style-type: none"> • arcade goes haywire • double loaded corridor | <ul style="list-style-type: none"> • private courtyard (third level) • interchange between private courtyards • school building interconnection | <ul style="list-style-type: none"> • internal courtyard dissociated from arcade and common courtyard | <ul style="list-style-type: none"> • clear arcade organization • arcade incorp. into portions of buildings • private courtyard at all levels • school and courtyard interchange | |

Concept Selection: Site Plan

7 EPILOGUE

Architecture that pays attention to details at a personal scale has become of special interest to me as the M.Arch. program progressed. A well placed seat or ledge, however minute the move, can make a world of difference to the person experiencing the architecture. I am glad of the opportunity to explore issues of this nature during thesis in the design of the elementary school. The whole issue of what is happening at the public zone, private zone, and zone in-between acquired a special meaning when applied towards the design of a learning environment for children, who need extra attention and care as they mature in the growth process.

During the term, there were numerous occasions when I was stuck or was headed in the wrong direction. My advisor, who understood perfectly how I felt and what I wanted to try to accomplish in the design, was able to help me out of the hole every time. I am grateful for her insight, which was not only instrumental in the development of the project, but ultimately resulted in a more satisfying learning experience for me. I hope that with time and experience, I will be able to help myself out of these holes in future endeavors towards making an architecture that is experientially welcoming and heart-warming for me as well as for others.

*Time is but the stream I go a-fishing in. I
drink at it; but while I drink I see the
sandy bottom and detect how shallow it
is. Its thin current slides away, but
eternity remains. I would drink deeper;
fish in the sky, whose bottom is pebbly
with stars.*

*H.D. Thoreau
Walden*

NOTES

- 1 Rieselbach, Anne, "Building and Learning", New Schools for New York: Plans and Precedents for Small Schools, Princeton Architectural Press, New York, 1992, p. 153.
- 2 Saint, Andrew, Towards A Social Architecture: The Role of School Building in Post-War England, Yale University Press, New Haven and London, 1987, p. 157.
- 3 Davey, Peter, "Schooling", *The Architectural Review*, vol. 189, no. 1135, September 1991, p. 26.
- 4 Frankl, Jeanne Silver, "Advocacy and Architecture", New Schools for New York: Plans and Precedents for Small Schools, Princeton Architectural Press, New York, 1992, p. 15.
- 5 New Schools for New York: Plans and Precedents for Small Schools, Princeton Architectural Press, New York, 1992; articles by Deborah Meier (see Bibliography); "Designing the New American School", M.I.T. Department of Architecture, April 23, 24, 1993. (conference); "Learning in America: Schools that Work", Public Broadcasting Station, 1990. (videocassette)
- 6 "Questionnaire to Hertzberger", *A+U*, no. 159, December 1983, p. 41.
- 7 Luchinger, Arnulf, Herman Hertzberger, Bauten und Projekte, 1959-1986, Den Haag, Arch-Edition, 1987, p. 49.
- 8 Ibid., pp. 52, 62.
- 9 Hertzberger, Herman, "Apollo Schools, Amsterdam, 1980-83", *A+U*, no. 159, December 1983, pp. 23-53.
- 10 Luchinger, Arnulf, Herman Hertzberger, Bauten und Projekte, 1959-1986, Den Haag, Arch-Edition, 1987, p. 339.
- 11 Elementary schools visited between April and June, 1993: Blackstone Square Community School; Pierce School; Quincy School; Joseph J. Hurley Elementary School; Cathedral School; Belmont Day School; Edward Devotion Elementary School;

Fayerweather Street School; Cambridge Friends School; and Shady Hill School. Belmont Hill School, serving grades seven to twelve, was also visited.

12 Interview with Mrs. Minor of the Blackstone Square Community School, April 5, 1993.

13 Reference for square footage taken from Educational Concepts Upon Which the Design Requirements for the New Elementary School Are Based and Architectural Graphic Standards.

14 Frankl, Jeanne Silver, "Advocacy and Architecture", New Schools for New York: Plans and Precedents for Small Schools, Princeton Architectural Press, New York, 1992, p. 14; Barker and Gump, Big School, Small School: High School Size and Student Behavior, Stanford University Press, California, 1964, p. 74.

15 Casault, Andre, Understanding the Changes and Constants of the Courtyard House Neighborhoods in Beijing, S.M.Arch.S. Thesis, M.I.T. Department of Architecture, June, 1988, p. 21.

16 "Learning in America: Schools that Work", Public Broadcasting Station, 1990. (video)

ILLUSTRATION CREDITS

All drawings and photographs not otherwise credited are by the author.

Fig. 1 The Architectural League of New York, The Public Education Association, New Schools for New York, 1992, p. 153.

Fig. 2 Ibid., p. 161.

Fig. 3 Ibid., p. 182.

Fig. 4 Luchinger, Arnulf, Herman Hertzberger, Bauten und Projekte, 1959-1986, 1987, p. 57.

Fig. 5 Coles, Robert, Harvard Educational Review, 1969, p. 54.

Fig. 6 Luchinger, Arnulf, Herman Hertzberger, Bauten und Projekte, 1959-1986, 1987, p. 52.

Fig. 7 Ibid., p. 55.

Fig. 8 Ibid., p. 52.

Fig. 9 Ibid., p. 62.

Fig. 10 Reinink, Wessel, Herman Hertzberger, 1990, p. 64.

Fig. 11 Luchinger, Arnulf, Herman Hertzberger, Bauten und Projekte, 1959-1986, 1987, p. 275.

Fig. 12 Reinink, Wessel, Herman Hertzberger, 1990, p. 65.

Fig. 13 Ibid., p. 69.

Fig. 14 Luchinger, Arnulf, Herman Hertzberger, Bauten und Projekte, 1959-1986, 1987, p. 340.

- Fig. 15 Ibid., p. 341.
- Fig. 16 Ibid., p. 341
- Fig. 29 Blaser, Werner, Courtyard House in China, 1979, p. 61.
- Fig. 30 Blaser, Werner, Atrium, 1985, p. 17.
- Fig. 31 Hinrichs et.al., The Courtyard as Dwelling, 1989, p. 18.
- Fig. 38 Hertzberger, Herman, Lessons for Students in Architecture, 1991, p. 203.
- Fig. 39 Sloane, Eric, The Little Red Schoolhouse, 1972, p. 1.
- Fig. 40 Costantino, Maria, Frank Lloyd Wright, 1991, p. 69.
- Fig. 41 Luchinger, Arnulf, Herman Hertzberger, Bauten und Projekte, 1959-1986, 1987, p. 57.
- Fig. 47 Van Heuvel, Wim J., Structuralism in Dutch Architecture, 1992, p. 53.
- Fig. 48 Hertzberger, Herman, Lessons for Students in Architecture, 1991, p. 196.

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